

Connecting via Winsock to STN

Welcome to STN International! Enter x:x

LOGINID:SSSPTA1626GMS

PASSWORD:

TERMINAL (ENTER 1, 2, 3, OR ?):2

* * * * * Welcome to STN International * * * * *

NEWS 1 Web Page URLs for STN Seminar Schedule - N. America
NEWS 2 "Ask CAS" for self-help around the clock
NEWS 3 DEC 23 New IPC8 SEARCH, DISPLAY, and SELECT fields in USPATFULL/
USPAT2
NEWS 4 JAN 13 IPC 8 searching in IFIPAT, IFIUDB, and IFICDB
NEWS 5 JAN 13 New IPC 8 SEARCH, DISPLAY, and SELECT enhancements added to
INPADOC
NEWS 6 JAN 17 Pre-1988 INPI data added to MARPAT
NEWS 7 JAN 17 IPC 8 in the WPI family of databases including WPIFV
NEWS 8 JAN 30 Saved answer limit increased
NEWS 9 FEB 21 STN AnaVist, Version 1.1, lets you share your STN AnaVist
visualization results
NEWS 10 FEB 22 The IPC thesaurus added to additional patent databases on STN
NEWS 11 FEB 22 Updates in EPFULL; IPC 8 enhancements added
NEWS 12 FEB 27 New STN AnaVist pricing effective March 1, 2006
NEWS 13 FEB 28 MEDLINE/LMEDLINE reload improves functionality
NEWS 14 FEB 28 TOXCENTER reloaded with enhancements
NEWS 15 FEB 28 REGISTRY/ZREGISTRY enhanced with more experimental spectral
property data
NEWS 16 MAR 01 INSPEC reloaded and enhanced
NEWS 17 MAR 03 Updates in PATDPA; addition of IPC 8 data without attributes
NEWS 18 MAR 08 X.25 communication option no longer available after June 2006
NEWS 19 MAR 22 EMBASE is now updated on a daily basis
NEWS 20 APR 03 New IPC 8 fields and IPC thesaurus added to PATDPAFULL
NEWS 21 APR 03 Bibliographic data updates resume; new IPC 8 fields and IPC
thesaurus added in PCTFULL
NEWS 22 APR 04 STN AnaVist \$500 visualization usage credit offered
NEWS 23 APR 12 LINSPEC, learning database for INSPEC, reloaded and enhanced
NEWS 24 APR 12 Improved structure highlighting in FQHIT and QHIT display
in MARPAT
NEWS 25 APR 12 Derwent World Patents Index to be reloaded and enhanced during
second quarter; strategies may be affected

NEWS EXPRESS FEBRUARY 15 CURRENT VERSION FOR WINDOWS IS V8.01a,
CURRENT MACINTOSH VERSION IS V6.0c(ENG) AND V6.0Jc(JP),
AND CURRENT DISCOVER FILE IS DATED 19 DECEMBER 2005.
V8.0 AND V8.01 USERS CAN OBTAIN THE UPGRADE TO V8.01a AT
<http://download.cas.org/express/v8.0-Discover/>

NEWS HOURS STN Operating Hours Plus Help Desk Availability
NEWS LOGIN Welcome Banner and News Items
NEWS IPC8 For general information regarding STN implementation of IPC 8

04/13/2006 10715845.trn

Enter NEWS followed by the item number or name to see news on that specific topic.

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* * * * * STN Columbus * * * * *

FILE 'HOME' ENTERED AT 09:41:21 ON 13 APR 2006

=>

Uploading

THIS COMMAND NOT AVAILABLE IN THE CURRENT FILE

Do you want to switch to the Registry File?

Choice (Y/n):

Switching to the Registry File...

Some commands only work in certain files. For example, the EXPAND command can only be used to look at the index in a file which has an index. Enter "HELP COMMANDS" at an arrow prompt (=>) for a list of commands which can be used in this file.

=> FILE REGISTRY

COST IN U.S. DOLLARS	SINCE FILE ENTRY	TOTAL SESSION
FULL ESTIMATED COST	0.21	0.21

FILE 'REGISTRY' ENTERED AT 09:41:37 ON 13 APR 2006

USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.

PLEASE SEE "HELP USAGETERMS" FOR DETAILS.

COPYRIGHT (C) 2006 American Chemical Society (ACS)

Property values tagged with IC are from the ZIC/VINITI data file provided by InfoChem.

STRUCTURE FILE UPDATES: 11 APR 2006 HIGHEST RN 880129-32-8

DICTIONARY FILE UPDATES: 11 APR 2006 HIGHEST RN 880129-32-8

New CAS Information Use Policies, enter HELP USAGETERMS for details.

TSCA INFORMATION NOW CURRENT THROUGH January 6, 2006

Please note that search-term pricing does apply when conducting SmartSELECT searches.

*
* The CA roles and document type information have been removed from *
* the IDE default display format and the ED field has been added, *
* effective March 20, 2005. A new display format, IDERL, is now *
* available and contains the CA role and document type information. *
*

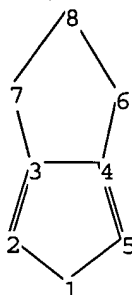
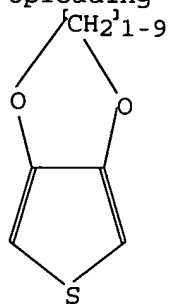
Structure search iteration limits have been increased. See HELP SLIMITS for details.

REGISTRY includes numerically searchable data for experimental and predicted properties as well as tags indicating availability of experimental property data in the original document. For information on property searching in REGISTRY, refer to:

<http://www.cas.org/ONLINE/UG/regprops.html>

=>

Uploading C:\Program Files\Stnexp\Queries\10715845.str



ring nodes :

1 2 3 4 5 6 7 8

ring bonds :

1-2 1-5 2-3 3-4 3-7 4-5 4-6 6-8 7-8

exact bonds :

1-2 1-5 2-3 3-4 3-7 4-5 4-6 6-8 7-8

isolated ring systems :

containing 1 :

Match level :

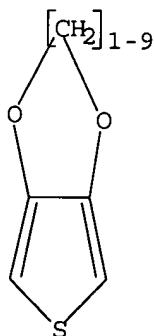
1:Atom 2:Atom 3:Atom 4:Atom 5:Atom 6:Atom 7:Atom 8:Atom

L1 STRUCTURE UPLOADED

=> d l1

L1 HAS NO ANSWERS

L1 STR



Structure attributes must be viewed using STN Express query preparation.

=> s l1

SAMPLE SEARCH INITIATED 09:41:49 FILE 'REGISTRY'
SAMPLE SCREEN SEARCH COMPLETED - 117 TO ITERATE

100.0% PROCESSED 117 ITERATIONS 50 ANSWERS
INCOMPLETE SEARCH (SYSTEM LIMIT EXCEEDED)
SEARCH TIME: 00.00.01

FULL FILE PROJECTIONS: ONLINE **COMPLETE**
BATCH **COMPLETE**
PROJECTED ITERATIONS: 1692 TO 2988
PROJECTED ANSWERS: 784 TO 1736

L2 50 SEA SSS SAM L1

=> s l1 sss full

FULL SEARCH INITIATED 09:41:57 FILE 'REGISTRY'
FULL SCREEN SEARCH COMPLETED - 2086 TO ITERATE

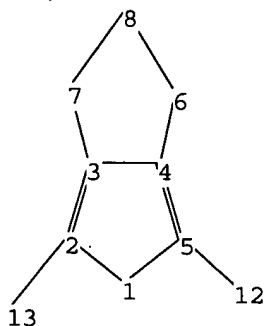
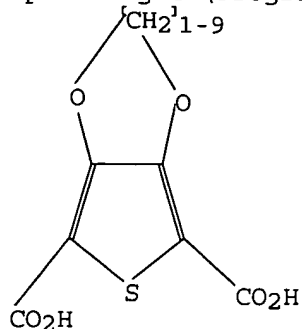
100.0% PROCESSED 2086 ITERATIONS
SEARCH TIME: 00.00.01

1103 ANSWERS

L3 1103 SEA SSS FUL L1

=>

Uploading C:\Program Files\Stnexp\Queries\10715845a.str



chain nodes :

12 13

ring nodes :

1 2 3 4 5 6 7 8

chain bonds :

2-13 5-12

ring bonds :

1-2 1-5 2-3 3-4 3-7 4-5 4-6 6-8 7-8

exact bonds :

1-2 1-5 2-3 2-13 3-4 3-7 4-5 4-6 5-12 6-8 7-8

isolated ring systems :

containing 1 :

Match level :

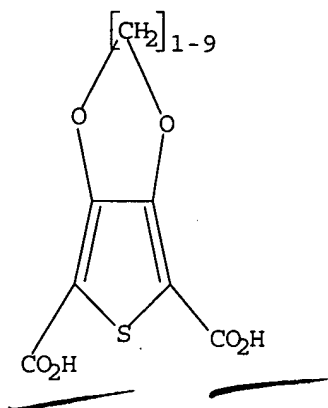
1:Atom 2:Atom 3:Atom 4:Atom 5:Atom 6:Atom 7:Atom 8:Atom 12:CLASS 13:CLASS

L4 STRUCTURE UPLOADED

=> d 14

L4 HAS NO ANSWERS

L4 STR



Structure attributes must be viewed using STN Express query preparation.

=> s 14

SAMPLE SEARCH INITIATED 09:43:39 FILE 'REGISTRY'

SAMPLE SCREEN SEARCH COMPLETED - 1 TO ITERATE

100.0% PROCESSED 1 ITERATIONS

1 ANSWERS

SEARCH TIME: 00.00.01

FULL FILE PROJECTIONS: ONLINE **COMPLETE**
BATCH **COMPLETE**

PROJECTED ITERATIONS: 1 TO 80

PROJECTED ANSWERS: 1 TO 80

L5 1 SEA SSS SAM L4

=> s 14 sss full

FULL SEARCH INITIATED 09:43:46 FILE 'REGISTRY'

FULL SCREEN SEARCH COMPLETED - 57 TO ITERATE

100.0% PROCESSED 57 ITERATIONS

SEARCH TIME: 00.00.01

6 ANSWERS

L6 6 SEA SSS FUL L4

=> FIL HCAPLUS

COST IN U.S. DOLLARS

SINCE FILE

TOTAL

ENTRY

SESSION

FULL ESTIMATED COST

334.76

334.97

FILE 'HCAPLUS' ENTERED AT 09:43:56 ON 13 APR 2006

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FILE COVERS 1907 - 13 Apr 2006 VOL 144 ISS 16
FILE LAST UPDATED: 12 Apr 2006 (20060412/ED)

New CAS Information Use Policies, enter HELP USAGETERMS for details.

This file contains CAS Registry Numbers for easy and accurate substance identification.

=> d his

(FILE 'HOME' ENTERED AT 09:41:21 ON 13 APR 2006)

FILE 'REGISTRY' ENTERED AT 09:41:37 ON 13 APR 2006

L1 STRUCTURE UPLOADED
L2 50 S L1
L3 1103 S L1 SSS FULL
L4 STRUCTURE UPLOADED
L5 1 S L4
L6 6 S L4 SSS FULL

FILE 'HCAPLUS' ENTERED AT 09:43:56 ON 13 APR 2006

=> s 13

L7 3708 L3

=> s 16

L8 18 L6

=> s 17 and 18

L9 18 L7 AND L8

=> s 19 and decarboxylating

1600 DECARBOXYLATING

L10 0 L9 AND DECARBOXYLATING

=> s 18 and decarboxylating

1600 DECARBOXYLATING

L11 0 L8 AND DECARBOXYLATING

=> s 18 and polar solvent

143637 POLAR

427 POLARS

143901 POLAR

(POLAR OR POLARS)

658711 SOLVENT

322993 SOLVENTS

826514 SOLVENT

(SOLVENT OR SOLVENTS)

20448 POLAR SOLVENT
(POLAR (W) SOLVENT)
L12 2 L8 AND POLAR SOLVENT

=> s 19 and polar solvent
143637 POLAR
427 POLARS
143901 POLAR
(POLAR OR POLARS)
658711 SOLVENT
322993 SOLVENTS
826514 SOLVENT
(SOLVENT OR SOLVENTS)
20448 POLAR SOLVENT

(POLAR (W) SOLVENT)
L13 2 L9 AND POLAR SOLVENT

=> s 19 and oxygen atmosphere
715223 OXYGEN
6794 OXYGENS
719965 OXYGEN
(OXYGEN OR OXYGENS)
75440 ATMOSPHERE
28927 ATMOSPHERES
100767 ATMOSPHERE
(ATMOSPHERE OR ATMOSPHERES)
558399 ATM
19979 ATMS
569216 ATM
(ATM OR ATMS)
605140 ATMOSPHERE
(ATMOSPHERE OR ATM)
4222 OXYGEN ATMOSPHERE
(OXYGEN (W) ATMOSPHERE)

L14 1 L9 AND ~~OXYGEN ATMOSPHERE~~

=> s 18 and oxygen atmosphere
715223 OXYGEN
6794 OXYGENS
719965 OXYGEN
(OXYGEN OR OXYGENS)
75440 ATMOSPHERE
28927 ATMOSPHERES
100767 ATMOSPHERE
(ATMOSPHERE OR ATMOSPHERES)
558399 ATM
19979 ATMS
569216 ATM
(ATM OR ATMS)
605140 ATMOSPHERE
(ATMOSPHERE OR ATM)
4222 OXYGEN ATMOSPHERE
(OXYGEN (W) ATMOSPHERE)

L15 1 L8 AND OXYGEN ATMOSPHERE

=> s 18 and process
2226715 PROCESS
1503658 PROCESSES
3321800 PROCESS

04/13/2006 10715845.trn

(PROCESS OR PROCESSES)
L16 5 L8 AND PROCESS

=> s l9 and process
2226715 PROCESS
1503658 PROCESSES
3321800 PROCESS
(PROCESS OR PROCESSES)
L17 5 L9 AND PROCESS

=> d his

(FILE 'HOME' ENTERED AT 09:41:21 ON 13 APR 2006)

FILE 'REGISTRY' ENTERED AT 09:41:37 ON 13 APR 2006

L1 STRUCTURE UPLOADED
L2 50 S L1
L3 1103 S L1 SSS FULL
L4 STRUCTURE UPLOADED
L5 1 S L4
L6 6 S L4 SSS FULL

FILE 'HCAPLUS' ENTERED AT 09:43:56 ON 13 APR 2006

L7 3708 S L3
L8 18 S L6
L9 18 S L7 AND L8
L10 0 S L9 AND DECARBOXYLATING
L11 0 S L8 AND DECARBOXYLATING
L12 2 S L8 AND POLAR SOLVENT
L13 2 S L9 AND POLAR SOLVENT
L14 1 S L9 AND OXYGEN ATMOSPHERE
L15 1 S L8 AND OXYGEN ATMOSPHERE
L16 5 S L8 AND PROCESS
L17 5 S L9 AND PROCESS

=> d l12 ibib abs hitstr tot

L12 ANSWER 1 OF 2 HCAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2005:1281732 HCAPLUS
DOCUMENT NUMBER: 144:70210
TITLE: Preparation of thiophene and polythiophene
INVENTOR(S): Xu, Liangheng; Li, Xiang; Wang, Qunying; Gao, Yun
PATENT ASSIGNEE(S): Peop. Rep. China
SOURCE: Faming Zhuanli Shenqing Gongkai Shuomingshu, 13 pp.
CODEN: CNXXEV
DOCUMENT TYPE: Patent
LANGUAGE: Chinese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
CN 1616454	A	20050518	CN 2004-10066866	20040929
PRIORITY APPLN. INFO.:			CN 2004-10066866	20040929
AB A process for preparing high purity thiophene at high yield is by catalytic or thermal decarboxylation, with copper and/or chromium salt or oxide as the catalyst, in polar solvent such as sulfolane and PEG. Polythiophene is prepared by polymerizing thiophene in the presence of oxidant and anionic polyelectrolyte at 0-50° for 5-30 h at a pH of				

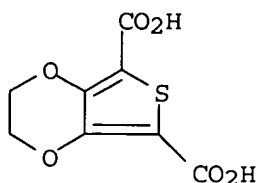
1.0-3.0. Polythiophene are useful as transparent conductive film for through-hole circuit board and electroluminescent display device.

IT 18361-03-0

RL: RCT (Reactant); RACT (Reactant or reagent)
(preparation of thiophene and polythiophene)

RN 18361-03-0 HCAPLUS

CN Thieno[3,4-b]-1,4-dioxin-5,7-dicarboxylic acid, 2,3-dihydro- (9CI) (CA INDEX NAME)



L12 ANSWER 2 OF 2 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2004:609964 HCAPLUS

DOCUMENT NUMBER: 141:140454

TITLE: Catalytic decarboxylation processes for preparing 3,4-alkylenedioxythiophenes and 3,4-dialkoxythiophenes

INVENTOR(S): Raik, Woon-Phil; Kim, Young-Sam; Hong, Hee-Jung; Jung, Sang-Gook

PATENT ASSIGNEE(S): Myongji University, S. Korea

SOURCE: U.S. Pat. Appl. Publ., 5 pp.

CODEN: USXXCO

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

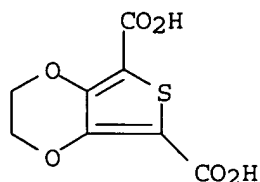
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2004147765	A1	20040729	US 2003-715845	20031119
PRIORITY APPLN. INFO.:			KR 2002-71992	A 20021119
OTHER SOURCE(S):	CASREACT 141:140454; MARPAT 141:140454			
AB	A process for preparing 3,4-dialkoxythiophenes (e.g., 3,4-dimethoxythiophene) or 3,4-alkylenedioxythiophenes (e.g., 3,4-ethylenedioxythiophene) in high yield via the rapid decarboxylation of 3,4-dialkoxythiophenedicarboxylic acid (e.g., 3,4-dimethoxy-2,5-thiophenedicarboxylic acid) or 3,4-alkylenedioxythiophenedicarboxylic acid in a water-miscible polar solvent in the presence of copper catalyst (e.g., copper powder) under an oxygen atmospheric is described.			

IT 18361-03-0

RL: RCT (Reactant); RACT (Reactant or reagent)
(catalytic decarboxylation processes for preparing 3,4-alkylenedioxythiophenes and 3,4-dialkoxythiophenes)

RN 18361-03-0 HCAPLUS

CN Thieno[3,4-b]-1,4-dioxin-5,7-dicarboxylic acid, 2,3-dihydro- (9CI) (CA INDEX NAME)



=> d l13 ibib abs hitstr tot

L13 ANSWER 1 OF 2 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2005:1281732 HCAPLUS

DOCUMENT NUMBER: 144:70210

TITLE: Preparation of thiophene and polythiophene

INVENTOR(S): Xu, Liangheng; Li, Xiang; Wang, Qunying; Gao, Yun

PATENT ASSIGNEE(S): Peop. Rep. China

SOURCE: Faming Zhuanli Shenqing Gongkai Shuomingshu, 13 pp.

CODEN: CNXXEV

DOCUMENT TYPE: Patent

LANGUAGE: Chinese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
CN 1616454	A	20050518	CN 2004-10066866	20040929
PRIORITY APPLN. INFO.:			CN 2004-10066866	20040929

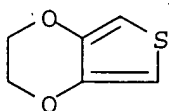
AB A process for preparing high purity thiophene at high yield is by catalytic or thermal decarboxylation, with copper and/or chromium salt or oxide as the catalyst, in **polar solvent** such as sulfolane and PEG. Polythiophene is prepared by polymerizing thiophene in the presence of oxidant and anionic polyelectrolyte at 0-50° for 5-30 h at a pH of 1.0-3.0. Polythiophene are useful as transparent conductive film for through-hole circuit board and electroluminescent display device.

IT **126213-50-1P 126213-51-2P 163359-60-2P**

RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(preparation of thiophene and polythiophene)

RN 126213-50-1 HCAPLUS

CN Thieno[3,4-b]-1,4-dioxin, 2,3-dihydro- (9CI) (CA INDEX NAME)



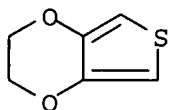
RN 126213-51-2 HCAPLUS

CN Thieno[3,4-b]-1,4-dioxin, 2,3-dihydro-, homopolymer (9CI) (CA INDEX NAME)

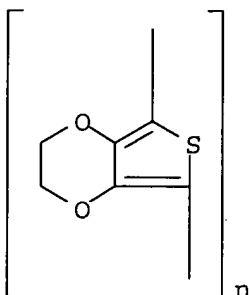
CM 1

CRN 126213-50-1

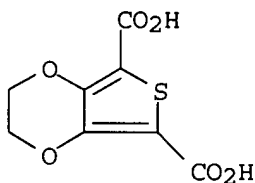
CMF C6 H6 O2 S



RN 163359-60-2 HCAPLUS
CN Poly(2,3-dihydrothieno[3,4-b]-1,4-dioxin-5,7-diyl) (9CI) (CA INDEX NAME)



IT 18361-03-0
RL: RCT (Reactant); RACT (Reactant or reagent)
(preparation of thiophene and polythiophene)
RN 18361-03-0 HCAPLUS
CN Thieno[3,4-b]-1,4-dioxin-5,7-dicarboxylic acid, 2,3-dihydro- (9CI) (CA INDEX NAME)



L13 ANSWER 2 OF 2 HCAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2004:609964 HCAPLUS
DOCUMENT NUMBER: 141:140454
TITLE: Catalytic decarboxylation processes for preparing
3,4-alkylenedioxythiophenes and 3,4-dialkoxythiophenes
INVENTOR(S): Baik, Woon-Phil; Kim, Young-Sam; Hong, Hee-Jung; Jung,
Sang-Gook
PATENT ASSIGNEE(S): Myongji University, S. Korea
SOURCE: U.S. Pat. Appl. Publ., 5 pp.
CODEN: USXXCO
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2004147765	A1	20040729	US 2003-715845	20031119
PRIORITY APPLN. INFO.:			KR 2002-71992	A 20021119
OTHER SOURCE(S):			CASREACT 141:140454; MARPAT 141:140454	

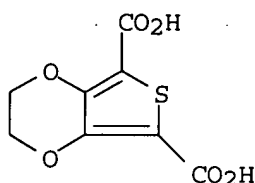
AB A process for preparing 3,4-dialkoxythiophenes (e.g., 3,4-dimethoxythiophene) or 3,4-alkylenedioxythiophenes (e.g., 3,4-ethylenedioxythiophene) in high yield via the rapid decarboxylation of 3,4-dialkoxythiophenedicarboxylic acid (e.g., 3,4-dimethoxy-2,5-thiophenedicarboxylic acid) or 3,4-alkylenedioxythiophenedicarboxylic acid in a water-miscible **polar solvent** in the presence of copper catalyst (e.g., copper powder) under an oxygen atmospheric is described.

IT 18361-03-0

RL: RCT (Reactant); RACT (Reactant or reagent)
(catalytic decarboxylation processes for preparing 3,4-alkylenedioxythiophenes and 3,4-dialkoxythiophenes)

RN 18361-03-0 HCAPLUS

CN Thieno[3,4-b]-1,4-dioxin-5,7-dicarboxylic acid, 2,3-dihydro- (9CI) (CA INDEX NAME)

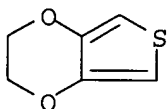


IT 126213-50-1P, 3,4-Ethylenedioxythiophene

RL: SPN (Synthetic preparation); PREP (Preparation)
(catalytic decarboxylation processes for preparing 3,4-alkylenedioxythiophenes and 3,4-dialkoxythiophenes)

RN 126213-50-1 HCAPLUS

CN Thieno[3,4-b]-1,4-dioxin, 2,3-dihydro- (9CI) (CA INDEX NAME)



=> d l14 ibib abs hitstr tot

L14 ANSWER 1 OF 1 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2004:609964 HCAPLUS

DOCUMENT NUMBER: 141:140454

TITLE: Catalytic decarboxylation processes for preparing 3,4-alkylenedioxythiophenes and 3,4-dialkoxythiophenes
INVENTOR(S): Baik, Woon-Phil; Kim, Young-Sam; Hong, Hee-Jung; Jung, Sang-Gook

PATENT ASSIGNEE(S): Myongji University, S. Korea

SOURCE: U.S. Pat. Appl. Publ., 5 pp.

CODEN: USXXCO

DOCUMENT TYPE: Patent
LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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US 2004147765 A1 ~~20040729~~ US 2003-715845 20031119
 PRIORITY APPLN. INFO.: KR 2002-71992 A 20021119
 OTHER SOURCE(S): CASREACT 141:140454; MARPAT 141:140454

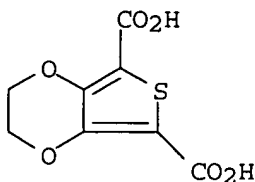
AB A process for preparing 3,4-dialkoxythiophenes (e.g., 3,4-dimethoxythiophene) or 3,4-alkylenedioxythiophenes (e.g., 3,4-ethylenedioxythiophene) in high yield via the rapid decarboxylation of 3,4-dialkoxythiophenedicarboxylic acid (e.g., 3,4-dimethoxy-2,5-thiophenedicarboxylic acid) or 3,4-alkylenedioxythiophenedicarboxylic acid in a water-miscible polar solvent in the presence of copper catalyst (e.g., copper powder) under an ~~oxygen atmospheric~~ is described.

IT ~~18361-03-0~~

RL: RCT (Reactant); RACT (Reactant or reagent)
 (catalytic decarboxylation processes for preparing 3,4-alkylenedioxythiophenes and 3,4-dialkoxythiophenes)

RN 18361-03-0 HCAPLUS

CN Thieno[3,4-b]-1,4-dioxin-5,7-dicarboxylic acid, 2,3-dihydro- (9CI) (CA INDEX NAME)

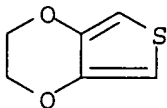


IT 126213-50-1P, 3,4-Ethylenedioxythiophene

RL: SPN (Synthetic preparation); PREP (Preparation)
 (catalytic decarboxylation processes for preparing 3,4-alkylenedioxythiophenes and 3,4-dialkoxythiophenes)

RN 126213-50-1 HCAPLUS

CN Thieno[3,4-b]-1,4-dioxin, 2,3-dihydro- (9CI) (CA INDEX NAME)



=> d l15 ibib abs hitstr tot

L15 ANSWER 1 OF 1 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2004:609964 HCAPLUS

DOCUMENT NUMBER: 141:140454

TITLE: Catalytic decarboxylation processes for preparing 3,4-alkylenedioxythiophenes and 3,4-dialkoxythiophenes
 INVENTOR(S): Baik, Woon-Phil; Kim, Young-Sam; Hong, Hee-Jung; Jung, Sang-Gook

PATENT ASSIGNEE(S): Myongji University, S. Korea

SOURCE: U.S. Pat. Appl. Publ., 5 pp.

CODEN: USXXCO

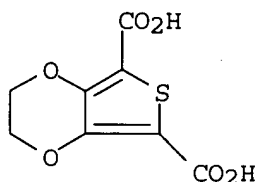
DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2004147765	A1	20040729	US 2003-715845	20031119
PRIORITY APPLN. INFO.:			KR 2002-71992	A 20021119
OTHER SOURCE(S):	CASREACT 141:140454; MARPAT 141:140454			
AB	A process for preparing 3,4-dialkoxythiophenes (e.g., 3,4-dimethoxythiophene) or 3,4-alkylenedioxythiophenes (e.g., 3,4-ethylenedioxythiophene) in high yield via the rapid decarboxylation of 3,4-dialkoxythiophenedicarboxylic acid (e.g., 3,4-dimethoxy-2,5-thiophenedicarboxylic acid) or 3,4-alkylenedioxythiophenedicarboxylic acid in a water-miscible polar solvent in the presence of copper catalyst (e.g., copper powder) under an oxygen atmospheric is described.			
IT	18361-03-0			
	RL: RCT (Reactant); RACT (Reactant or reagent) (catalytic decarboxylation processes for preparing 3,4-alkylenedioxythiophenes and 3,4-dialkoxythiophenes)			
RN	18361-03-0 HCAPLUS			
CN	Thieno[3,4-b]-1,4-dioxin-5,7-dicarboxylic acid, 2,3-dihydro- (9CI) (CA INDEX NAME)			



=> d l16 ibib abs hitstr tot

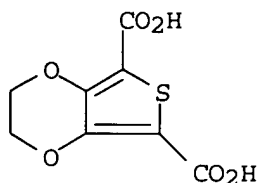
L16 ANSWER 1 OF 5 HCAPLUS COPYRIGHT 2006 ACS on STN
 ACCESSION NUMBER: 2005:1281732 HCAPLUS
 DOCUMENT NUMBER: 144:70210
 TITLE: Preparation of thiophene and polythiophene
 INVENTOR(S): Xu, Liangheng; Li, Xiang; Wang, Qunying; Gao, Yun
 PATENT ASSIGNEE(S): Peop. Rep. China
 SOURCE: Faming Zhuanli Shenqing Gongkai Shuomingshu, 13 pp.
 CODEN: CNXXEV
 DOCUMENT TYPE: Patent
 LANGUAGE: Chinese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
CN 1616454	A	20050518	CN 2004-10066866	20040929
PRIORITY APPLN. INFO.:			CN 2004-10066866	20040929
AB	A process for preparing high purity thiophene at high yield is by catalytic or thermal decarboxylation, with copper and/or chromium salt or oxide as the catalyst, in polar solvent such as sulfolane and PEG. Polythiophene is prepared by polymerizing thiophene in the presence of oxidant and anionic polyelectrolyte at 0-50° for 5-30 h at a pH of 1.0-3.0. Polythiophene are useful as transparent conductive film for through-hole circuit board and electroluminescent display device.			
IT	18361-03-0			

RL: RCT (Reactant); RACT (Reactant or reagent)
(preparation of thiophene and polythiophene)

RN 18361-03-0 HCAPLUS

CN Thieno[3,4-b]-1,4-dioxin-5,7-dicarboxylic acid, 2,3-dihydro- (9CI) (CA INDEX NAME)



L16 ANSWER 2 OF 5. HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2004:609964 HCAPLUS

DOCUMENT NUMBER: 141:140454

TITLE: Catalytic decarboxylation **processes** for preparing 3,4-alkylenedioxythiophenes and 3,4-dialkoxythiophenes

INVENTOR(S): Baik, Woon-Phil; Kim, Young-Sam; Hong, Hee-Jung; Jung, Sang-Gook

PATENT ASSIGNEE(S): Myongji University, S. Korea

SOURCE: U.S. Pat. Appl. Publ., 5 pp.

CODEN: USXXCO

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2004147765	A1	20040729	US 2003-715845	20031119
PRIORITY APPLN. INFO.:			KR 2002-71992	A 20021119

OTHER SOURCE(S): CASREACT 141:140454; MARPAT 141:140454

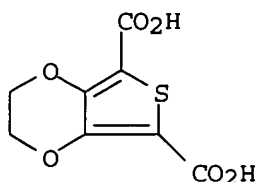
AB A **process** for preparing 3,4-dialkoxythiophenes (e.g., 3,4-dimethoxythiophene) or 3,4-alkylenedioxythiophenes (e.g., 3,4-ethylenedioxythiophene) in high yield via the rapid decarboxylation of 3,4-dialkoxythiophenedicarboxylic acid (e.g., 3,4-dimethoxy-2,5-thiophenedicarboxylic acid) or 3,4-alkylenedioxythiophenedicarboxylic acid in a water-miscible polar solvent in the presence of copper catalyst (e.g., copper powder) under an oxygen atmospheric is described.

IT 18361-03-0

RL: RCT (Reactant); RACT (Reactant or reagent)
(catalytic decarboxylation **processes** for preparing 3,4-alkylenedioxythiophenes and 3,4-dialkoxythiophenes)

RN 18361-03-0 HCAPLUS

CN Thieno[3,4-b]-1,4-dioxin-5,7-dicarboxylic acid, 2,3-dihydro- (9CI) (CA INDEX NAME)



L16 ANSWER 3 OF 5 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2003:259737 HCAPLUS

DOCUMENT NUMBER: 138:271528

TITLE: Preparation of 3,4-dialkoxothiophenes via the alkylation of 3,4-dihydroxythiophene-2,5-dicarboxylic esters

INVENTOR(S): Rauchschalbe, Guenter; Klausener, Alexander; Bremen, Josef; Schenkel, Ralf-Ingo; Winkler, Adolf

PATENT ASSIGNEE(S): Bayer AG, Germany; Bayer Chemicals AG

SOURCE: Eur. Pat. Appl., 14 pp.

CODEN: EPXXDW

DOCUMENT TYPE: Patent

LANGUAGE: German

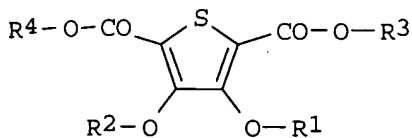
FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

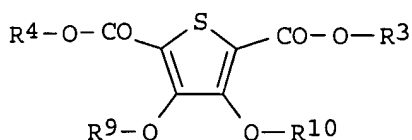
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 1298133	A1	20030402	EP 2002-20594	20020918
EP 1298133	B1	20050119		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, SK				
DE 10148437	A1	20030417	DE 2001-10148437	20011001
AT 287409	E	20050215	AT 2002-20594	20020918
US 2003097007	A1	20030522	US 2002-256836	20020927
US 6750354	B2	20040615		
JP 2003128667	A2	20030508	JP 2002-285694	20020930
PRIORITY APPLN. INFO.:			DE 2001-10148437 A	20011001

OTHER SOURCE(S): CASREACT 138:271528; MARPAT 138:271528

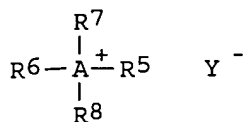
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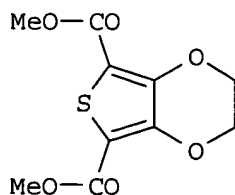
I



II



III



IV

AB A **process** for the preparation of title compds. I via the alkylation of 3,4-dihydroxythiophenes II in the presence of organic quaternary onium salts III [R1, R2 = H, alkali metal, earth alkali metal; R3, R4 = (un)substituted alkyl; R5, R6, R7, R8 = (un)substituted alkyl, aryl, arylalkyl; R9, R10 = (un)substituted alkyl; A = N, P; Y- = anion] is disclosed. For example, to a mixture of 3,4-dihydroxythiophen-2,5-dicarboxylic acid di-Me ester disodium salt (0.2 mol), potassium carbonate (10.8 g), tetrabutylammonium bromide (3.4 g) in DMF (135 g), heated under nitrogen atm to 130-135°C was added dichloroethane (0.4 mol) over a 15-min period. The reaction was heated for an addnl. 5 h, then concentrated in vacuo and the residue dissolved in 2-propanol (40 g) and aqueous sodium hydroxide (45%, 43 g). The mixture was heated at 80°C for 2 h and after an acid aqueous work-up, afforded dicarboxylic acid IV in 77% yield. The procedure permits the alkylation of compds. I in excellent yields, under mild conditions, at low temps. with short reaction times.

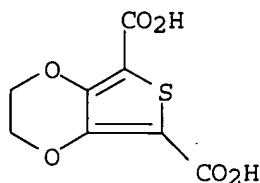
IT **503623-04-9P**

RL: IMF (Industrial manufacture); SPN (Synthetic preparation); PREP (Preparation)

(intermediate; preparation of dialkoxythiophenes via the alkylation of dihydroxythiophenedicarboxylic esters)

RN 503623-04-9 HCAPLUS

CN Thieno[3,4-b]-1,4-dioxin-5,7-dicarboxylic acid, 2,3-dihydro-, monohydrate (9CI) (CA INDEX NAME)



● H₂O

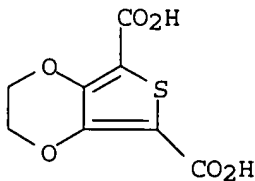
IT **18361-03-0P**

RL: IMF (Industrial manufacture); SPN (Synthetic preparation); PREP (Preparation)

(product; preparation of dialkoxythiophenes via the alkylation of dihydroxythiophenedicarboxylic esters)

RN 18361-03-0 HCAPLUS

CN Thieno[3,4-b]-1,4-dioxin-5,7-dicarboxylic acid, 2,3-dihydro- (9CI) (CA INDEX NAME)



REFERENCE COUNT:

6

THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

103
L16 ANSWER 4 OF 5 HCAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2001:923215 HCAPLUS
DOCUMENT NUMBER: 136:37589
TITLE: Decarboxylation **process** for the production
of 3,4-alkylenedioxythiophenes from
3,4-alkylenedioxythiophene-2,5-dicarboxylic acids
using amine as solvents

INVENTOR(S): ~~Jonas~~, Friedrich
PATENT ASSIGNEE(S): Bayer A.-G., Germany
SOURCE: Ger. Offen., 4 pp.
CODEN: GWXXBX

DOCUMENT TYPE: Patent
LANGUAGE: German

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 10029078	A1	20011220	DE 2000-10029078	20000613
PRIORITY APPLN. INFO.:			DE 2000-10029078	20000613

OTHER SOURCE(S): CASREACT 136:37589; MARPAT 136:37589

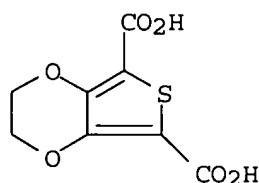
AB 3,4-Alkylenedioxythiophenes (e.g., 3,4-ethylenedioxythiophene) are prepared in high yield and selectivity, without the need to use copper catalysts, by the decarboxylation of 3,4-alkylenedioxythiophene-2,5-dicarboxylic acids (e.g., 3,4-ethylenedioxythiophene-2,5-dicarboxylic acid) in the presence of amines R₂N(R₁)R₃ [R₁-R₃ = H, (un)substituted (un)branched C₁-30 alkyl, (un)substituted aryl; R₁R₂ = C₃-10 alkylene group] (e.g., triethanolamine) as solvents.

IT 18361-03-0

RL: RCT (Reactant); RACT (Reactant or reagent)
(decarboxylation **process** for the production of
3,4-alkylenedioxythiophenes from 3,4-alkylenedioxythiophene-2,5-
dicarboxylic acids using amine as solvents)

RN 18361-03-0 HCAPLUS

CN Thieno[3,4-b]-1,4-dioxin-5,7-dicarboxylic acid; 2,3-dihydro- (9CI) (CA
INDEX NAME)



L16 ANSWER 5 OF 5 HCAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 1997:251082 HCAPLUS
DOCUMENT NUMBER: 126:278009
TITLE: High-Contrast Electrochromic Polymers from
Alkyl-Derivatized Poly(3,4-ethylenedioxythiophenes)
AUTHOR(S): Sankaran, Balasubramanian; Reynolds, John R.
CORPORATE SOURCE: Department of Chemistry Center for Macromolecular
Science and Engineering, University of Florida,
Gainesville, FL, 32611-7200, USA
SOURCE: Macromolecules (1997), 30(9), 2582-2588
CODEN: MAMOBX; ISSN: 0024-9297
PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal
 LANGUAGE: English

AB Derivs. of 3,4-ethylenedioxythiophene (EDOT), specifically 5-octyldioxeno[2,3-c]thiophene (EDOT-C8) and 5-tetradecyldioxeno[2,3-c]thiophene (EDOT-C14), and their polymers were prepared. Cyclic voltammetry of PEDOT-C8 and EDOT-C14 in 0.1 M TBAP/CH₃CN show irreversible monomer oxidation peaks (E_{p,m}) at 0.89 and 0.93 V, resp. Multiple scans yield electroactive and conducting polymer films on electrode surfaces. The polymers, PEDOT-C8 and PEDOT-C14 oxidize with relatively low peak potentials at -0.22 and -0.19 V, resp., indicating that the doped form of the polymer is quite stable. Both PEDOT-C8 and PEDOT-C14 show two reduction processes with peaks at -0.18 and -0.16 V (E_{c1,p}) and -0.55 and -0.36 V (E_{c2,p}) resp. Optoelectrochem. studies reveal an E_g of 1.75 eV for both polymers. The polymers are electrochromic, relatively transmissive and light gray in the oxidized form, while being opaque and deep purple in the reduced form, thus exhibiting high electrochromic contrasts. Long term switching studies carried out in 0.1 M LiClO₄/PC with Li/Li⁺ as a reversible counter electrode process show that PEDOT, PEDOT-C8, and PEDOT-C14 retained 65%, 50%, and 62% of their electroactivity after 6000, 9000, and 16 000 double switches, resp.

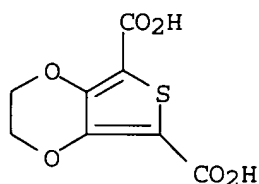
IT 18361-03-0P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(preparation and electrochem. polymerization of octyl- and tetradecyl-dioxeno ethylenedioxythiophenes to obtain electrochromic polymers)

RN 18361-03-0 HCAPLUS

CN Thieno[3,4-b]-1,4-dioxin-5,7-dicarboxylic acid, 2,3-dihydro- (9CI) (CA INDEX NAME)



REFERENCE COUNT: 51 THERE ARE 51 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

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L17 ANSWER 1 OF 5 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2005:1281732 HCAPLUS

DOCUMENT NUMBER: 144:70210

TITLE: Preparation of thiophene and polythiophene

INVENTOR(S): Xu, Liangheng; Li, Xiang; Wang, Qunying; Gao, Yun

PATENT ASSIGNEE(S): Peop. Rep. China

SOURCE: Faming Zhuanli Shenqing Gongkai Shuomingshu, 13 pp.

CODEN: CNXXEV

DOCUMENT TYPE: Patent

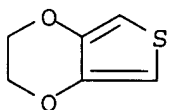
LANGUAGE: Chinese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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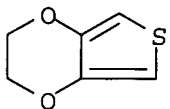
 CN 1616454 A 20050518 CN 2004-10066866 20040929
 PRIORITY APPLN. INFO.: CN 2004-10066866 20040929
 AB A **process** for preparing high purity thiophene at high yield is by
 catalytic or thermal decarboxylation, with copper and/or chromium salt or
 oxide as the catalyst, in polar solvent such as sulfolane and PEG.
 Polythiophene is prepared by polymerizing thiophene in the presence of oxidant
 and anionic polyelectrolyte at 0-50° for 5-30 h at a pH of 1.0-3.0.
 Polythiophene are useful as transparent conductive film for through-hole
 circuit board and electroluminescent display device.
 IT **126213-50-1P 126213-51-2P 163359-60-2P**
 RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
 (preparation of thiophene and polythiophene)
 RN 126213-50-1 HCAPLUS
 CN Thieno[3,4-b]-1,4-dioxin, 2,3-dihydro- (9CI) (CA INDEX NAME)



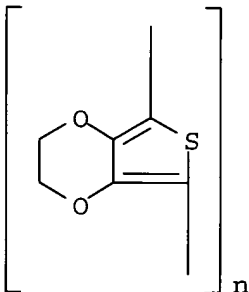
RN 126213-51-2 HCAPLUS
 CN Thieno[3,4-b]-1,4-dioxin, 2,3-dihydro-, homopolymer (9CI) (CA INDEX NAME)

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CRN 126213-50-1
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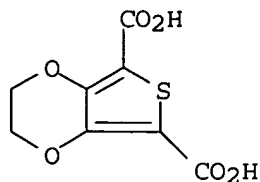


RN 163359-60-2 HCAPLUS
 CN Poly(2,3-dihydrothieno[3,4-b]-1,4-dioxin-5,7-diyl) (9CI) (CA INDEX NAME)



IT **18361-03-0**
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (preparation of thiophene and polythiophene)
 RN 18361-03-0 HCAPLUS
 CN Thieno[3,4-b]-1,4-dioxin-5,7-dicarboxylic acid, 2,3-dihydro- (9CI) (CA

INDEX NAME)



L17 ANSWER 2 OF 5 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2004:609964 HCAPLUS

DOCUMENT NUMBER: 141:140454

TITLE: Catalytic decarboxylation **processes** for
~~preparing 3,4-alkylenedioxythiophenes and~~
 3,4-dialkoxythiophenes

INVENTOR(S): Baik, Woon-Phil; Kim, Young-Sam; Hong, Hee-Jung; Jung,
 Sang-Gook

PATENT ASSIGNEE(S): Myongji University, S. Korea

SOURCE: U.S. Pat. Appl. Publ., 5 pp.

CODEN: USXXCO

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2004147765	A1	20040729	US 2003-715845	20031119
PRIORITY APPLN. INFO.:			KR 2002-71992	A 20021119
OTHER SOURCE(S):			CASREACT 141:140454; MARPAT 141:140454	

AB A **process** for preparing 3,4-dialkoxythiophenes (e.g., 3,4-dimethoxythiophene) or 3,4-alkylenedioxythiophenes (e.g., 3,4-ethylenedioxythiophene) in high yield via the rapid decarboxylation of 3,4-dialkoxythiophenedicarboxylic acid (e.g., 3,4-dimethoxy-2,5-thiophenedicarboxylic acid) or 3,4-alkylenedioxythiophenedicarboxylic acid in a water-miscible polar solvent in the presence of copper catalyst (e.g., copper powder) under an oxygen atmospheric is described.

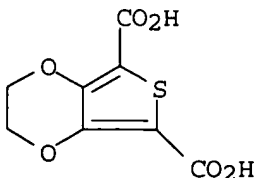
IT 18361-03-0

RL: RCT (Reactant); RACT (Reactant or reagent)

(catalytic decarboxylation **processes** for preparing
 3,4-alkylenedioxythiophenes and 3,4-dialkoxythiophenes)

RN 18361-03-0 HCAPLUS

CN Thieno[3,4-b]-1,4-dioxin-5,7-dicarboxylic acid, 2,3-dihydro- (9CI) (CA
 INDEX NAME)



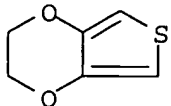
IT 126213-50-1P, 3,4-Ethylenedioxythiophene

RL: SPN (Synthetic preparation); PREP (Preparation)

(catalytic decarboxylation **processes** for preparing
3,4-alkylenedioxythiophenes and 3,4-dialkoxythiophenes)

RN 126213-50-1 HCAPLUS

CN Thieno[3,4-b]-1,4-dioxin, 2,3-dihydro- (9CI) (CA INDEX NAME)



L17 ANSWER 3 OF 5 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2003:259737 HCAPLUS

DOCUMENT NUMBER: 138:271528

TITLE: Preparation of 3,4-dialkoxythiophenes via the
alkylation of 3,4-dihydroxythiophene-2,5-dicarboxylic
esters

INVENTOR(S): RauchsSchwalbe, Guenter; Klausener, Alexander; Bremen,
Josef; Schenkel, Ralf-Ingo; Winkler, Adolf

PATENT ASSIGNEE(S): Bayer AG, Germany; Bayer Chemicals AG

SOURCE: Eur. Pat. Appl., 14 pp.

CODEN: EPXXDW

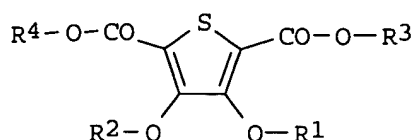
DOCUMENT TYPE: Patent

LANGUAGE: German

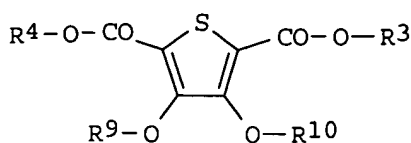
FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

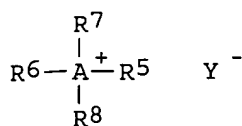
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 1298133	A1	20030402	EP 2002-20594	20020918
EP 1298133	B1	20050119		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, SK				
DE 10148437	A1	20030417	DE 2001-10148437	20011001
AT 287409	E	20050215	AT 2002-20594	20020918
US 2003097007	A1	20030522	US 2002-256836	20020927
US 6750354	B2	20040615		
JP 2003128667	A2	20030508	JP 2002-285694	20020930
PRIORITY APPLN. INFO.:			DE 2001-10148437 A	20011001
OTHER SOURCE(S):		CASREACT 138:271528; MARPAT 138:271528		
GI				



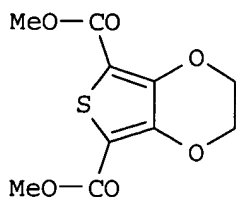
I



II



III



IV

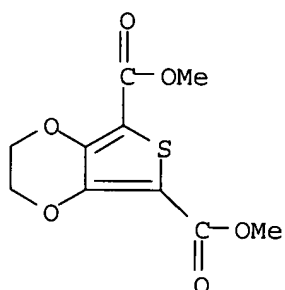
AB A **process** for the preparation of title compds. I via the alkylation of 3,4-dihydroxythiophenes II in the presence of organic quaternary onium salts III [R1, R2 = H, alkali metal, earth alkali metal; R3, R4 = (un)substituted alkyl; R5, R6, R7, R8 = (un)substituted alkyl, aryl, arylalkyl; R9, R10 = (un)substituted alkyl; A = N, P; Y- = anion] is disclosed. For example, to a mixture of 3,4-dihydroxythiophen-2,5-dicarboxylic acid di-Me ester disodium salt (0.2 mol), potassium carbonate (10.8 g), tetrabutylammonium bromide (3.4 g) in DMF (135 g), heated under nitrogen atm to 130-135°C was added dichloroethane (0.4 mol) over a 15-min period. The reaction was heated for an addnl. 5 h, then concentrated in vacuo and the residue dissolved in 2-propanol (40 g) and aqueous sodium hydroxide (45%, 43 g). The mixture was heated at 80°C for 2 h and after an acid aqueous work-up, afforded dicarboxylic acid IV in 77% yield. The procedure permits the alkylation of compds. I in excellent yields, under mild conditions, at low temps. with short reaction times.

IT **380599-87-1P**

RL: IMF (Industrial manufacture); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(intermediate; preparation of dialkoxythiophenes via the alkylation of dihydroxythiophenedicarboxylic esters)

RN 380599-87-1 HCAPLUS

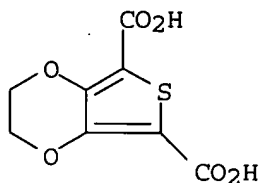
CN Thieno[3,4-b]-1,4-dioxin-5,7-dicarboxylic acid, 2,3-dihydro-, dimethyl ester (9CI) (CA INDEX NAME)



IT **503623-04-9P**

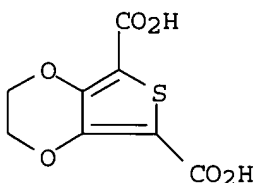
RL: IMF (Industrial manufacture); SPN (Synthetic preparation); PREP (Preparation)
(intermediate; preparation of dialkoxythiophenes via the alkylation of

dihydroxythiophenedicarboxylic esters)
 RN 503623-04-9 HCAPLUS
 CN Thieno[3,4-b]-1,4-dioxin-5,7-dicarboxylic acid, 2,3-dihydro-, monohydrate
 (9CI) (CA INDEX NAME)



● H₂O

IT 18361-03-0P
 RL: IMF (Industrial manufacture); SPN (Synthetic preparation); PREP
 (Preparation)
 (product; preparation of dialkoxythiophenes via the alkylation of
 dihydroxythiophenedicarboxylic esters)
 RN 18361-03-0 HCAPLUS
 CN Thieno[3,4-b]-1,4-dioxin-5,7-dicarboxylic acid, 2,3-dihydro- (9CI) (CA
 INDEX NAME)



REFERENCE COUNT: 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS
 RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L17 ANSWER 4 OF 5 HCAPLUS COPYRIGHT 2006 ACS on STN
 ACCESSION NUMBER: 2001:923215 HCAPLUS
 DOCUMENT NUMBER: 136:37589
 TITLE: Decarboxylation **process** for the production
 of 3,4-alkylenedioxythiophenes from
 3,4-alkylenedioxythiophene-2,5-dicarboxylic acids
 using amine as solvents
 INVENTOR(S): Jonas, Friedrich
 PATENT ASSIGNEE(S): Bayer A.-G., Germany
 SOURCE: Ger. Offen., 4 pp.
 CODEN: GWXXBX
 DOCUMENT TYPE: Patent
 LANGUAGE: German
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 10029078	A1	20011220	DE 2000-10029078	20000613

PRIORITY APPLN. INFO.: DE 2000-10029078 20000613
 OTHER SOURCE(S): CASREACT 136:37589; MARPAT 136:37589

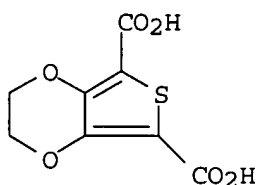
AB 3,4-Alkylenedioxythiophenes (e.g., 3,4-ethylenedioxythiophene) are prepared in high yield and selectivity, without the need to use copper catalysts, by the decarboxylation of 3,4-alkylenedioxythiophene-2,5-dicarboxylic acids (e.g., 3,4-ethylenedioxythiophene-2,5-dicarboxylic acid) in the presence of amines R₂N(R₁)R₃ [R₁-R₃ = H, (un)substituted (un)branched C₁-30 alkyl, (un)substituted aryl; R₁R₂ = C₃-10 alkylene group] (e.g., triethanolamine) as solvents.

IT 18361-03-0

RL: RCT (Reactant); RACT (Reactant or reagent)
 (decarboxylation **process** for the production of
 3,4-alkylenedioxythiophenes from 3,4-alkylenedioxythiophene-2,5-
 dicarboxylic acids using amine as solvents)

RN 18361-03-0 HCAPLUS

CN Thieno[3,4-b]-1,4-dioxin-5,7-dicarboxylic acid, 2,3-dihydro- (9CI) (CA INDEX NAME)

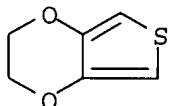


IT 126213-50-1P, 3,4-Ethylenedioxythiophene

RL: SPN (Synthetic preparation); PREP (Preparation)
 (decarboxylation **process** for the production of
 3,4-alkylenedioxythiophenes from 3,4-alkylenedioxythiophene-2,5-
 dicarboxylic acids using amine as solvents)

RN 126213-50-1 HCAPLUS

CN Thieno[3,4-b]-1,4-dioxin, 2,3-dihydro- (9CI) (CA INDEX NAME)



L17 ANSWER 5 OF 5 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1997:251082 HCAPLUS

DOCUMENT NUMBER: 126:278009

TITLE: High-Contrast Electrochromic Polymers from
 Alkyl-Derivatized Poly(3,4-ethylenedioxythiophenes)

AUTHOR(S): Sankaran, Balasubramanian; Reynolds, John R.

CORPORATE SOURCE: Department of Chemistry Center for Macromolecular
 Science and Engineering, University of Florida,
 Gainesville, FL, 32611-7200, USA

SOURCE: Macromolecules (1997), 30(9), 2582-2588

CODEN: MAMOBX; ISSN: 0024-9297

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Derivs. of 3,4-ethylenedioxythiophene (EDOT), specifically
 5-octyldioxeno[2,3-c]thiophene (EDOT-C8) and 5-tetradecyldioxeno[2,3-

c]thiophene (EDOT-C14), and their polymers were prepared. Cyclic voltammetry of PEDOT-C8 and EDOT-C14 in 0.1 M TBAP/CH₃CN show irreversible monomer oxidation peaks (E_{p,m}) at 0.89 and 0.93 V, resp. Multiple scans yield electroactive and conducting polymer films on electrode surfaces. The polymers, PEDOT-C8 and PEDOT-C14 oxidize with relatively low peak potentials at -0.22 and -0.19 V, resp., indicating that the doped form of the polymer is quite stable. Both PEDOT-C8 and PEDOT-C14 show two reduction processes with peaks at -0.18 and -0.16 V (E_{c1,p}) and -0.55 and -0.36 V (E_{c2,p}) resp. Optoelectrochem. studies reveal an E_g of 1.75 eV for both polymers. The polymers are electrochromic, relatively transmissive and light gray in the oxidized form, while being opaque and deep purple in the reduced form, thus exhibiting high electrochromic contrasts. Long term switching studies carried out in 0.1 M LiClO₄/PC with Li/Li⁺ as a reversible counter electrode process show that PEDOT, PEDOT-C8, and PEDOT-C14 retained 65%, 50%, and 62% of their electroactivity after 6000, 9000, and 16 000 double switches, resp.

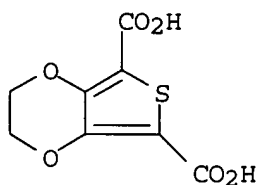
IT 18361-03-0P 126213-50-1P, 3,4-Ethylenedioxythiophene
154934-13-1P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(preparation and electrochem. polymerization of octyl- and tetradecyl-dioxeno ethylenedioxythiophenes to obtain electrochromic polymers)

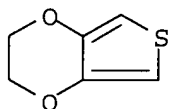
RN 18361-03-0 HCAPLUS

CN Thieno[3,4-b]-1,4-dioxin-5,7-dicarboxylic acid, 2,3-dihydro- (9CI) (CA INDEX NAME)



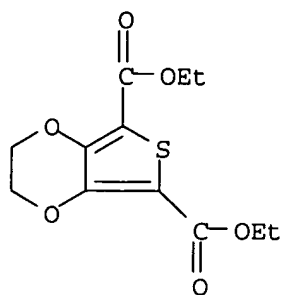
RN 126213-50-1 HCAPLUS

CN Thieno[3,4-b]-1,4-dioxin, 2,3-dihydro- (9CI) (CA INDEX NAME)

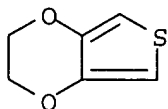


RN 154934-13-1 HCAPLUS

CN Thieno[3,4-b]-1,4-dioxin-5,7-dicarboxylic acid, 2,3-dihydro-, diethyl ester (9CI) (CA INDEX NAME)



IT 126213-51-2P, 3,4-Ethylenedioxythiophene homopolymer
 RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
 (preparation and optoelectrochem. and reversible electroactivity of
 alkyl-dioxeno-ethylenedioxythiophene high-contrast electrochromic
 polymers)
 RN 126213-51-2 HCAPLUS
 CN Thieno[3,4-b]-1,4-dioxin, 2,3-dihydro-, homopolymer (9CI) (CA INDEX NAME)
 CM 1
 CRN 126213-50-1
 CMF C6 H6 O2 S



REFERENCE COUNT: 51 THERE ARE 51 CITED REFERENCES AVAILABLE FOR THIS
 RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

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L8 ANSWER 1 OF 18 HCAPLUS COPYRIGHT 2006 ACS on STN
 ACCESSION NUMBER: 2005:1281732 HCAPLUS
 DOCUMENT NUMBER: 144:70210
 TITLE: Preparation of thiophene and polythiophene
 INVENTOR(S): Xu, Liangheng; Li, Xiang; Wang, Qunying; Gao, Yun
 PATENT ASSIGNEE(S): Peop. Rep. China
 SOURCE: Faming Zhuanli Shenqing Gongkai Shuomingshu, 13 pp.
 CODEN: CNXXEV
 DOCUMENT TYPE: Patent
 LANGUAGE: Chinese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
CN 1616454	A	20050518	CN 2004-10066866	20040929
PRIORITY APPLN. INFO.:			CN 2004-10066866	20040929

AB A process for preparing high purity thiophene at high yield is by catalytic
 or thermal decarboxylation, with copper and/or chromium salt or oxide as
 the catalyst, in polar solvent such as sulfolane and PEG. Polythiophene

is prepared by polymerizing thiophene in the presence of oxidant and anionic polyelectrolyte at 0-50° for 5-30 h at a pH of 1.0-3.0.
Polythiophene are useful as transparent conductive film for through-hole circuit board and electroluminescent display device.

L8 ANSWER 2 OF 18 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2004:609964 HCAPLUS

DOCUMENT NUMBER: 141:140454

TITLE: Catalytic decarboxylation processes for preparing
3,4-alkylenedioxythiophenes and 3,4-dialkoxythiophenes

INVENTOR(S): Baik, Woon-Bhil; Kim, Young-Sam; Hong, Hee-Jung; Jung,
Sang-Gook

PATENT ASSIGNEE(S): Myongji University, S. Korea

SOURCE: U.S. Pat. Appl. Publ., 5 pp.

CODEN: USXXCO

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2004147765	A1	20040729	US 2003-715845	20031119
PRIORITY APPLN. INFO.:			KR 2002-71992	A 20021119
OTHER SOURCE(S):			CASREACT 141:140454; MARPAT 141:140454	

AB A process for preparing 3,4-dialkoxythiophenes (e.g., 3,4-dimethoxythiophene) or 3,4-alkylenedioxythiophenes (e.g., 3,4-ethylenedioxythiophene) in high yield via the rapid decarboxylation of 3,4-dialkoxythiophenedicarboxylic acid (e.g., 3,4-dimethoxy-2,5-thiophenedicarboxylic acid) or 3,4-alkylenedioxythiophenedicarboxylic acid in a water-miscible polar solvent in the presence of copper catalyst (e.g., copper powder) under an oxygen atmospheric is described.

L8 ANSWER 3 OF 18 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2004:510005 HCAPLUS

DOCUMENT NUMBER: 141:38520

TITLE: Procedure for thermal decarboxylation of
3,4-ethylenedioxythiophene-2,5-dicarboxylic acid in
copper carbonate fluidized bed

INVENTOR(S): Buchholz, Sigurd; Klausener, Alexander; Langer,
Reinhard; Mleczo, Leslaw; Rauchschalbe, Guenter

PATENT ASSIGNEE(S): Bayer AG, Germany

SOURCE: Ger. Offen., 5 pp.

CODEN: GWXXBX

DOCUMENT TYPE: Patent

LANGUAGE: German

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 10258588	A1	20040624	DE 2002-10258588	20021216
WO 2004055023	A1	20040701	WO 2003-EP13679	20031204

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN,
CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH,
GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR,
LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM,
PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN,
TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW

RW: BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ,
 BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE,
 ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK,
 TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

AU 2003288225 A1 20040709 AU 2003-288225 20031204
 EP 1575961 A1 20050921 EP 2003-780117 20031204

R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,
 IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK

PRIORITY APPLN. INFO.: DE 2002-10258588 A 20021216
 WO 2003-EP13679 W 20031204

OTHER SOURCE(S): CASREACT 141:38520

AB The invention relates to the thermal decarboxylation of dicarboxylic acids especially 3,4-ethylenedioxythiophene-2,5-dicarboxylic acid. The thermal decarboxylation of the solid educt is carried out in a fluidized bed in the absence of solvents and in the presence of an inert gas at 100°-600°. The fluidizing agent consists of preheated, catalytically active material such as CuCO₃. The resulting product especially gaseous 3,4-ethylenedioxythiophene is discharged from the reaction zone. Thus, 3,4-ethylenedioxy-thiophene-2,5-dicarboxylic acid and CuCO₃ was fluidized with N₂ in a quartz fluidized bed at 280° for 58 min to give >94% 3,4-ethylenedioxythiophene.

L8 ANSWER 4 OF 18 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2003:259737 HCAPLUS

DOCUMENT NUMBER: 138:271528

TITLE: Preparation of 3,4-dialkoxythiophenes via the
 alkylation of 3,4-dihydroxythiophene-2,5-dicarboxylic
 esters

INVENTOR(S): RauchsSchwalbe, Guenter; Klausener, Alexander; Bremen,
 Josef; Schenkel, Ralf-Ingo; Winkler, Adolf

PATENT ASSIGNEE(S): Bayer AG, Germany; Bayer Chemicals AG

SOURCE: Eur. Pat. Appl., 14 pp.

CODEN: EPXXDW

DOCUMENT TYPE: Patent

LANGUAGE: German

FAMILY ACC. NUM. COUNT: 1

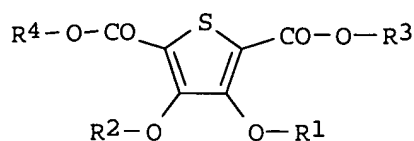
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 1298133	A1	20030402	EP 2002-20594	20020918
EP 1298133	B1	20050119		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, SK				
DE 10148437	A1	20030417	DE 2001-10148437	20011001
AT 287409	E	20050215	AT 2002-20594	20020918
US 2003097007	A1	20030522	US 2002-256836	20020927
US 6750354	B2	20040615		
JP 2003128667	A2	20030508	JP 2002-285694	20020930

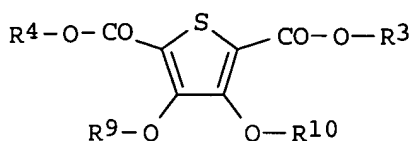
PRIORITY APPLN. INFO.: DE 2001-10148437 A 20011001

OTHER SOURCE(S): CASREACT 138:271528; MARPAT 138:271528

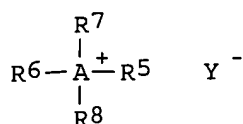
GI



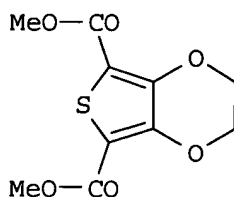
I



II



III



IV

AB A process for the preparation of title compds. I via the alkylation of 3,4-dihydroxythiophenes II in the presence of organic quaternary onium salts III [R1, R2 = H, alkali metal, earth alkali metal; R3, R4 = (un)substituted alkyl; R5, R6, R7, R8 = (un)substituted alkyl, aryl, arylalkyl; R9, R10 = (un)substituted alkyl; A = N, P; Y- = anion] is disclosed. For example, to a mixture of 3,4-dihydroxythiophen-2,5-dicarboxylic acid di-Me ester disodium salt (0.2 mol), potassium carbonate (10.8 g), tetrabutylammonium bromide (3.4 g) in DMF (135 g), heated under nitrogen atm to 130-135°C was added dichloroethane (0.4 mol) over a 15-min period. The reaction was heated for an addnl. 5 h, then concentrated in vacuo and the residue dissolved in 2-propanol (40 g) and aqueous sodium hydroxide (45%, 43 g). The mixture was heated at 80°C for 2 h and after an acid aqueous work-up, afforded dicarboxylic acid IV in 77% yield. The procedure permits the alkylation of compds. I in excellent yields, under mild conditions, at low temps. with short reaction times.

REFERENCE COUNT: 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L8 ANSWER 5 OF 18 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2003:49084 HCAPLUS

DOCUMENT NUMBER: 138:288052

TITLE: Synthesis and characterization of aromatic polyoxadiazoles containing 3,4-alkylenedioxythiophenes
 AUTHOR(S): Ojha, Uma P.; Krishnamoorthy, K.; Kumar, Anil
 CORPORATE SOURCE: Department of Chemistry, Indian Institute of Technology, Mumbai, 400076, India

SOURCE: Synthetic Metals (2003), 132(3), 279-283

CODEN: SYMEDZ; ISSN: 0379-6779

PUBLISHER: Elsevier Science B.V.

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Wholly aromatic polyoxadiazoles containing 3,4-alkylenedioxythiophenes are synthesized using the precursor polyhydrazide route. The polymers have well-defined structures and exhibit good thermal stability with the onset decomposition temperature in nitrogen at around 330°. The polymers are characterized by FTIR, 1H NMR, UV-visible and fluorescence spectroscopy. The electrochem. properties of these polymers are studied using cyclic voltammetry. Polyoxadiazoles based on 3,4-alkylenedioxythiophenes exhibit good hole-blocking properties.

REFERENCE COUNT: 20 THERE ARE 20 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L8 ANSWER 6 OF 18 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2003:32694 HCAPLUS
 DOCUMENT NUMBER: 139:53425
 TITLE: Synthesis and investigation of electrochemical properties of 3,4-butylenedioxythiophene and 3,4-hexylenedioxythiophene monomers
 AUTHOR(S): Czardybon, Agata; Zapalska, Zaneta; Maslinska-Solich, Jolanta; Lapkowski, Mieczyslaw
 CORPORATE SOURCE: Katedra Fizykochem. i Technol. Polimerow, Politech. Slaska, Gliwice, Pol.
 SOURCE: Zeszyty Naukowe Politechniki Slaskiej, Chemia (2001), 146, 83-86
 CODEN: ZNSCAM; ISSN: 0372-9494
 PUBLISHER: Wydawnictwo Politechniki Slaskiej
 DOCUMENT TYPE: Journal
 LANGUAGE: Polish

AB We prepared 3,4-butylenedioxythiophene and 3,4-hexylenedioxythiophene. These monomers were polymerized and their stability was examined using cyclic voltammetry. The obtained poly(3,4-butylenedioxythiophene) is stable in the range of potentials (-0.6)-1.1 V. 3,4-Hexylenedioxythiophene polymerized with difficulty in organic solvents.

L8 ANSWER 7 OF 18 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2002:881499 HCAPLUS
 DOCUMENT NUMBER: 139:230513
 TITLE: Product class 10: thiophenes, thiophene 1,1-dioxides, and thiophene 1-oxides
 AUTHOR(S): Schatz, J.
 CORPORATE SOURCE: Abt. Organische Chemie I, Universitaet Ulm, Ulm, 89081, Germany
 SOURCE: Science of Synthesis (2002), 9, 287-422
 CODEN: SSCYJ9
 PUBLISHER: Georg Thieme Verlag
 DOCUMENT TYPE: Journal; General Review
 LANGUAGE: English

AB A review describing methods for preparing thiophenes, thiophene 1,1-dioxides, and thiophene 1-oxides.

REFERENCE COUNT: 1180 THERE ARE 1180 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE REFORMAT

L8 ANSWER 8 OF 18 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2001:923215 HCAPLUS
 DOCUMENT NUMBER: 136:37589
 TITLE: ~~Decarboxylation process for the production of 3,4-alkylenedioxythiophenes from 3,4-alkylenedioxythiophene-2,5-dicarboxylic acids using amine as solvents~~
 INVENTOR(S): Jonas, Friedrich
 PATENT ASSIGNEE(S): Bayer A.-G., Germany
 SOURCE: Ger. Offen., 4 pp.
 CODEN: GWXXBX
 DOCUMENT TYPE: Patent
 LANGUAGE: German
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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 DE 10029078 A1 20011220 DE 2000-10029078 20000613
 PRIORITY APPLN. INFO.: DE 2000-10029078 20000613
 OTHER SOURCE(S): CASREACT 136:37589; MARPAT 136:37589

AB 3,4-Alkylenedioxythiophenes (e.g., 3,4-ethylenedioxythiophene) are prepared in high yield and selectivity, without the need to use copper catalysts, by the decarboxylation of 3,4-alkylenedioxythiophene-2,5-dicarboxylic acids (e.g., 3,4-ethylenedioxythiophene-2,5-dicarboxylic acid) in the presence of amines R₂N(R₁)R₃ [R₁-R₃ = H, (un)substituted (un)branched C₁-30 alkyl, (un)substituted aryl; R₁R₂ = C₃-10 alkylene group] (e.g., triethanolamine) as solvents.

L8 ANSWER 9 OF 18 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2001:923214 HCAPLUS

DOCUMENT NUMBER: 136:37588

TITLE: Procedure for the production of 3,4-alkylenedioxythiophene-2,5-dicarboxylic acid derivatives

INVENTOR(S): Krugenofen, Friedrich Jonas

PATENT ASSIGNEE(S): Bayer A.-G., Germany

SOURCE: Ger. Offen., 6 pp.

CODEN: GWXXBX

DOCUMENT TYPE: Patent

LANGUAGE: German

FAMILY ACC. NUM. COUNT: 1

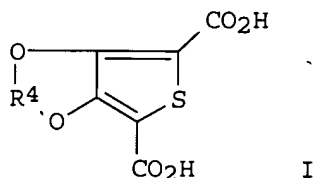
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 10029075	A1	20011220	DE 2000-10029075	20000613
EP 1167368	A1	20020102	EP 2001-112846	20010531
EP 1167368	B1	20031105		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
AT 253581	E	20031115	AT 2001-112846	20010531
JP 2002193972	A2	20020710	JP 2001-172387	20010607
US 2002002287	A1	20020103	US 2001-877301	20010608
US 6528662	B2	20030304		

PRIORITY APPLN. INFO.: DE 2000-10029075 A 20000613

OTHER SOURCE(S): CASREACT 136:37588; MARPAT 136:37588

GI



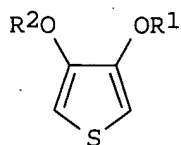
AB 3,4-Alkylenedioxythiophene-2,5-dicarboxylic acid derivs. [I; R₄ = (un)branched (un)substituted C₁-20 alkyl; e.g., 3,4-ethylenedioxythiophene-2,5-dicarboxylic acid] are prepared by the cyclocondensation of esters R₁O₂CCH₂SCH₂CO₂R₁ (R₁ = R₄; e.g., R₁ = Et) with oxalate diesters R₂O₂CCO₂R₂ (R₂ = R₄; e.g., Et) in the presence of an alkoxide R₃OA (R₃ =

R4; A = Li, Na, K; e.g., potassium methoxide) to give 3,4-dihydroxy-2,5-thiophenedicarboxylate mixed diesters which are then cyclocondensed with R4X2 (X = F, Cl, Br, I; e.g., 1,2-dichloroethane) in the presence of base and the diester groups subjected to saponification followed by acidification.

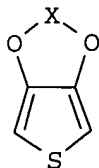
L8 ANSWER 10 OF 18 HCAPLUS COPYRIGHT 2006 ACS on STN
 ACCESSION NUMBER: 2001:747165 HCAPLUS
 DOCUMENT NUMBER: 135:289187
 TITLE: Preparation of dialkoxythiophenes and alkylenedioxythiophenes
 INVENTOR(S): Rauchschalbe, Guenter; Jonas, Friedrich
 PATENT ASSIGNEE(S): Bayer A.-G., Germany
 SOURCE: Eur. Pat. Appl., 10 pp.
 CODEN: EPXXDW
 DOCUMENT TYPE: Patent
 LANGUAGE: German
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 1142888	A1	20011010	EP 2001-106444	20010323
EP 1142888	B1	20040908		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
DE 10016723	A1	20011011	DE 2000-10016723	20000404
US 2001034453	A1	20011025	US 2001-813875	20010321
US <u>6369239</u>	B2	<u>20020409</u>		
AT 275555	E	20040915	AT 2001-106444	20010323
ES 2228680	T3	20050416	ES 2001-1106444	20010323
JP 2001288182	A2	20011016	JP 2001-92829	20010328
PRIORITY APPLN. INFO.:			DE 2000-10016723	A 20000404
OTHER SOURCE(S):	MARPAT 135:289187			

GI



I



II

AB Dialkoxythiophenes (I; R1, R2 = C1-15 alkyl) and alkylenedioxythiophenes [II; X = (un)substituted (CH2)n; n = 1-12], useful as monomers for elec. conductive polymers, are manufactured by decarboxylation of 3,4-dialkoxy- resp. 3,4-dialkylenedioxy-2,5-thiophenedicarboxylic acids in the presence of solvents or diluents which have b.ps. higher than decarboxylated products and are not aromatic amines, and optionally, heavy metal salt catalysts. The products are separated by distillation For example, heating a mixture of 450 g di-Bu phthalate and 240 g 3,4-ethylenedioxythiophene-2,5-dicarboxylic acid to 150° in vacuo (.apprx.30 mbar) and removing H2O by distillation, heating the residue for 24 h at 240° under N until CO2 evolution ceased and distilling the product at 0.1 mbar gave 118 g 3,4-ethylenedioxythiophene.

REFERENCE COUNT: 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L8 ANSWER 11 OF 18 HCAPLUS COPYRIGHT 2006 ACS on STN
 ACCESSION NUMBER: 2000:157871 HCAPLUS
 DOCUMENT NUMBER: 132:200909
 TITLE: Electroluminescent devices using thiophenecarboxylate metal complexes
 INVENTOR(S): Heuer, Werner; Wehrmann, Rolf; Elschner, Andreas
 PATENT ASSIGNEE(S): Bayer A.-G., Germany
 SOURCE: Ger. Offen., 50 pp.
 CODEN: GWXXBX
 DOCUMENT TYPE: Patent
 LANGUAGE: German
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 19839947	A1	20000309	DE 1998-19839947	19980902
WO 2000014815	A1	20000316	WO 1999-EP6151	19990823
W: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, GM, KE, LS, MW, SD, SL, SZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
AU 9956236	A1	20000327	AU 1999-56236	19990823
EP 1114474	A1	20010711	EP 1999-942899	19990823
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
JP 2002524830	T2	20020806	JP 2000-569458	19990823
TW 515836	B	20030101	TW 1999-88115076	19990909
US 6503643	B1	20030107	US 2001-786089	20010228
PRIORITY APPLN. INFO.:			DE 1998-19839947	A 19980902
			WO 1999-EP6151	W 19990823

OTHER SOURCE(S): MARPAT 132:200909

AB Electroluminescent devices comprising a substrate, an anode, an electroluminescent structure including ≥ 1 of hole-injecting, hole-transporting, electroluminescent, electron-transporting, and electron-injecting regions, and a cathode, ≥ 1 of the electrodes being transparent in the visible region are described in which the electroluminescent structure includes a thiophenecarboxylate metal complex.

L8 ANSWER 12 OF 18 HCAPLUS COPYRIGHT 2006 ACS on STN
 ACCESSION NUMBER: 1998:127132 HCAPLUS
 DOCUMENT NUMBER: 128:167916
 TITLE: Conducting Poly(3,4-alkylenedioxythiophene) Derivatives as Fast Electrochromics with High-Contrast Ratios
 AUTHOR(S): Kumar, Anil; Welsh, Dean M.; Morvant, Mark C.; Piroux, Fabienne; Abboud, Khalil A.; Reynolds, John R.
 CORPORATE SOURCE: Department of Chemistry Center for Macromolecular Science and Engineering, University of Florida, Gainesville, FL, 32611, USA
 SOURCE: Chemistry of Materials (1998), 10(3), 896-902
 CODEN: CMATEX; ISSN: 0897-4756

PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English

AB A series of alkyl-substituted and unsubstituted poly(3,4-alkylenedioxythiophene)s were synthesized by electrochem. polymerization using 3,4-alkylenedioxythiophene derivative monomers where either the size of the alkylenedioxy ring or the nature of the pendent group was varied. The monomers include: 3,4-ethylenedioxythiophene (EDOT), 2-methyl-2,3-dihydrothieno[3,4-b][1,4]dioxine (EDOT-Me), 2-tetradecyl-2,3-dihydrothieno[3,4-b][1,4]dioxine (EDOT-C14H29), 2-phenyl-2,3-dihydrothieno[3,4-b][1,4]dioxine (EDOT-Ph), 3,4-dihydro-2H-thieno[3,4-b][1,4]dioxepine (ProDOT), 3-methyl-3,4-dihydro-2H-thieno[3,4-b][1,4]dioxepine (ProDOT-Me), 2,3,4,5-tetrahydrothieno[3,4-b][1,4]dioxocine (BuDOT), and 5,10-dihydrobenzo[f]thieno[3,4-b][1,4]dioxocine (BuDOT-Xyl). Optoelectrochem. expts. revealed that the nature of the substitution on the polymers had little effect on the extent of conjugation of the backbone as evidenced by electronic band gaps for all polymers of approx. 1.7 eV (730 nm). These electrochromic polymers switch from a relatively transmissive light green in the oxidized form to an opaque dark blue in the reduced form, with the highest electrochromic contrast ratios accessible for PBuDOT and PEDOT-C14H29. Multiple switching studies monitoring the electrochromic contrast showed that ca. 300 nm thick polymer films could be fully switched between their reduced and oxidized forms in 0.8-2.2 s with ΔT of 44-63%. In situ conductivity studies carried out on relatively thick polymer films (2.7-9.5 μm) deposited between large gap (200 μm) lateral growth electrodes demonstrated the low-potential turn-on for these materials, and maximum conductivities of 0.2-12.1 S/cm were attained.

REFERENCE COUNT: 27 THERE ARE 27 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L8 ANSWER 13 OF 18 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1997:251082 HCAPLUS

DOCUMENT NUMBER: 126:278009

TITLE: High-Contrast Electrochromic Polymers from Alkyl-Derivatized Poly(3,4-ethylenedioxythiophenes)

AUTHOR(S): Sankaran, Balasubramanian; Reynolds, John R.

CORPORATE SOURCE: Department of Chemistry Center for Macromolecular Science and Engineering, University of Florida, Gainesville, FL, 32611-7200, USA

SOURCE: Macromolecules (1997), 30(9), 2582-2588

CODEN: MAMOBX; ISSN: 0024-9297

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

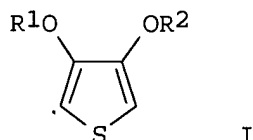
AB Derivs. of 3,4-ethylenedioxythiophene (EDOT), specifically 5-octyldioxeno[2,3-c]thiophene (EDOT-C8) and 5-tetradecyldioxeno[2,3-c]thiophene (EDOT-C14), and their polymers were prepared. Cyclic voltammetry of PEDOT-C8 and EDOT-C14 in 0.1 M TBAP/CH3CN show irreversible monomer oxidation peaks (E_p ,m) at 0.89 and 0.93 V, resp. Multiple scans yield electroactive and conducting polymer films on electrode surfaces. The polymers, PEDOT-C8 and PEDOT-C14 oxidize with relatively low peak potentials at -0.22 and -0.19 V, resp., indicating that the doped form of the polymer is quite stable. Both PEDOT-C8 and PEDOT-C14 show two reduction processes with peaks at -0.18 and -0.16 V ($E_{c1,p}$) and -0.55 and -0.36 V ($E_{c2,p}$) resp. Optoelectrochem. studies reveal an E_g of 1.75 eV for both polymers. The polymers are electrochromic, relatively transmissive and light gray in the oxidized form, while being opaque and deep purple in the reduced form, thus exhibiting high electrochromic contrasts. Long term

switching studies carried out in 0.1 M LiClO₄/PC with Li/Li⁺ as a reversible counter electrode process show that PEDOT, PEDOT-C8, and PEDOT-C14 retained 65%, 50%, and 62% of their electroactivity after 6000, 9000, and 16 000 double switches, resp.

REFERENCE COUNT: 51 THERE ARE 51 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L8 ANSWER 14 OF 18 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1996:260464 HCAPLUS
DOCUMENT NUMBER: 125:10524
TITLE: A facile synthesis of 3,4-dialkoxythiophenes
AUTHOR(S): Coffey, M.; McKellar, B. R.; Reinhardt, B. A.; Nijakowski, T.; Feld, W. A.
CORPORATE SOURCE: Dep. Chem., Wright State Univ., Dayton, OH, 45435, USA
SOURCE: Synthetic Communications (1996), 26(11), 2205-12
CODEN: SYNCAV; ISSN: 0039-7911
PUBLISHER: Dekker
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 125:10524
GI



AB Dialkylation of di-Et 3,4-dihydroxythiophenedicarboxylate followed by ester hydrolysis and acid decarboxylation provides a general route to 3,4-dialkoxythiophenes (R₁ = R₂ = Me, Bu, C₁₀H₂₁, CH₂Ph; R₁R₂ = CH₂CH₂, CH₂CH₂CH₂).

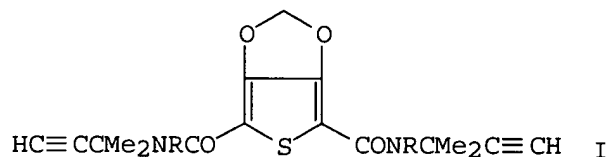
L8 ANSWER 15 OF 18 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1994:271367 HCAPLUS
DOCUMENT NUMBER: 120:271367
TITLE: Electrochromic and highly stable poly(3,4-ethylenedioxythiophene) switches between opaque blue-black and transparent sky blue
AUTHOR(S): Pei, Qibing; Zuccarello, Guido; Ahlskog, Markus; Inganaes, Olle
CORPORATE SOURCE: Dep. Phys., Univ. Linköping, Linköping, S-581 83, Swed.
SOURCE: Polymer (1994), 35(7), 1347-51
CODEN: POLMAG; ISSN: 0032-3861
DOCUMENT TYPE: Journal
LANGUAGE: English

AB The synthesis and properties of poly(3,4-ethylenedioxythiophene) (I) are reported. I shows a low band gap, 0.5 eV lower than that of polythiophene. This leads to very pronounced electrochromic properties since I is almost transparent, with a sky-blue tint, and neutral I is blue-black. The low band gap also leads to the possibility of n-doping by electrochem. methods. The conductivity of doped I is ≤200 S cm⁻¹, and the stability is remarkable, much better than observed in the authors' studies of the polythiophene and polypyrrole families.

L8 ANSWER 16 OF 18 HCAPLUS COPYRIGHT 2006 ACS on STN
 ACCESSION NUMBER: 1978:152598 HCAPLUS
 DOCUMENT NUMBER: 88:152598
 TITLE: 3,4-Methylenedioxythiophene-2,5-dicarboxylic acid
 amides
 INVENTOR(S): Mues, Volker; Jacobi, Haireddin; Etschenberg, Eugen
 PATENT ASSIGNEE(S): Fed. Rep. Ger.
 SOURCE: Ger. Offen., 13 pp.
 CODEN: GWXXBX
 DOCUMENT TYPE: Patent
 LANGUAGE: German
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 2637816	A1	19780223	DE 1976-2637816	19760821
PRIORITY APPLN. INFO.: GI			DE 1976-2637816	A 19760821



AB Amides I (R = H, C1-10 alkyl, C2-10 alkenyl, C2-10 alkynyl, C3-10 cycloalkyl, C6-10 aryl, C7-11 aralkyl, any of which may be substituted) were prepared. Thus 3,4-methylenedioxythiophene-2,5-dicarboxylic acid was converted to its chloride and treated with H₂NCMe₂C.tplbond.CH to give 72% I (R = H), which had analgesic, sedative, antiinflammatory, and central nervous system depressant activity.

L8 ANSWER 17 OF 18 HCAPLUS COPYRIGHT 2006 ACS on STN
 ACCESSION NUMBER: 1975:170765 HCAPLUS
 DOCUMENT NUMBER: 82:170765
 TITLE: Methylenedioxyhetarenes. 2. Reactions of diethyl
 3,4-methylenedioxy-2,5-thiophenedicarboxylate
 AUTHOR(S): Dallacker, Franz; Mues, Volker
 CORPORATE SOURCE: Inst. Org. Chem., Tech. Hochsch. Aachen, Aachen, Fed.
 Rep. Ger.
 SOURCE: Chemische Berichte (1975), 108(2), 576-81
 CODEN: CHBEAM; ISSN: 0009-2940
 DOCUMENT TYPE: Journal
 LANGUAGE: German
 OTHER SOURCE(S): CASREACT 82:170765

GI For diagram(s), see printed CA Issue.

AB The sym. thiophene derivative I (R = R₁ = CO₂Et) (II) was treated with excess alc. KOH, N₂H₄.H₂O, and Br at pH 7.0 to give .apprx.100% I (R = R₁ = CO₂H) (III), 79% I (R = R₁ = CONHNH₂) (IV), and extremely light- and air-sensitive I (R = R₁ = Br) (V), resp. III was esterified to give I (R = R₁ = CO₂Me) or chlorinated and aminated, e.g. with NH₃, to give I (R = R₁ = CONH₂) (VI). IV was condensed with piperonal to yield the piperonylidene derivative I (R = R₁ = CONHN:CHC₆H₃O₂CH₂-3,4) and V converted into I (R = R₁ = iodo). Boiling VI and POCl₃ gave 54% I (R = R₁ = CN),

which with H₂S in pyridine-Et₃N gave 100% I (R = R₁ = CSNH₂).

L8 ANSWER 18 OF 18 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1967:402953 HCAPLUS
DOCUMENT NUMBER: 67:2953
TITLE: Synthesis of potential anticancer agents. I.
Synthesis of substituted thiophenes
AUTHOR(S): Gogte, V. N.; Shah, L. G.; Tilak, Bal D.; Gadekar,
Kumudini N.; Sahasrabudhe, M. B.
CORPORATE SOURCE: Univ. Bombay, Bombay, India
SOURCE: Tetrahedron (1967), 23(5), 2437-41
CODEN: TETRAB; ISSN: 0040-4020
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 67:2953

GI For diagram(s), see printed CA Issue.

AB In view of the anticancer activity of thiophene-2,5-dicarboxylic acid (I), a series of derivs. of I were prepared Starting from 2,5-dichloromethylthiophene, thiophene-2,5-dicarboxaldehyde, thiophene-2,5-dimethylenylthiuronium dichloride (II), and 2,5-dimercaptomethylthiophene were prepared 3,4-Dihydroxythiophene, a thiophene isoster of catechol, was prepared by decarboxylation of 2,5-dicarboxy-3,4-dihydroxythiophene. Of the compds. reported, II proved highly active against Yoshida sarcoma in rats.

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L9 ANSWER 1 OF 18 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2005:1281732 HCAPLUS
DOCUMENT NUMBER: 144:70210
TITLE: Preparation of thiophene and polythiophene
INVENTOR(S): Xu, Liangheng; Li, Xiang; Wang, Qunying; Gao, Yun
PATENT ASSIGNEE(S): Peop. Rep. China
SOURCE: Faming Zhuanli Shenqing Gongkai Shuomingshu, 13 pp.
CODEN: CNXXEV
DOCUMENT TYPE: Patent
LANGUAGE: Chinese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
CN 1616454	A	20050518	CN 2004-10066866	20040929
PRIORITY APPLN. INFO.:			CN 2004-10066866	20040929

AB A process for preparing high purity thiophene at high yield is by catalytic or thermal decarboxylation, with copper and/or chromium salt or oxide as the catalyst, in polar solvent such as sulfolane and PEG. Polythiophene is prepared by polymerizing thiophene in the presence of oxidant and anionic polyelectrolyte at 0-50° for 5-30 h at a pH of 1.0-3.0. Polythiophene are useful as transparent conductive film for through-hole circuit board and electroluminescent display device.

L9 ANSWER 2 OF 18 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2004:609964 HCAPLUS
DOCUMENT NUMBER: 141:140454
TITLE: Catalytic decarboxylation processes for preparing
3,4-alkylenedioxythiophenes and 3,4-dialkoxythiophenes
INVENTOR(S): Baik, Woon-Phil; Kim, Young-Sam; Hong, Hee-Jung; Jung,

PATENT ASSIGNEE(S): Sang-Gook
 SOURCE: Myongji University, S. Korea
 U.S. Pat. Appl. Publ., 5 pp.
 CODEN: USXXCO
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2004147765	A1	20040729	US 2003-715845	20031119
PRIORITY APPLN. INFO.:			KR 2002-71992	A 20021119
OTHER SOURCE(S): CASREACT 141:140454; MARPAT 141:140454				
AB A process for preparing 3,4-dialkoxythiophenes (e.g., 3,4-dimethoxythiophene) or 3,4-alkylenedioxythiophenes (e.g., 3,4-ethylenedioxythiophene) in high yield via the rapid decarboxylation of 3,4-dialkoxythiophenedicarboxylic acid (e.g., 3,4-dimethoxy-2,5-thiophenedicarboxylic acid) or 3,4-alkylenedioxythiophenedicarboxylic acid in a water-miscible polar solvent in the presence of copper catalyst (e.g., copper powder) under an oxygen atmospheric is described.				

L9 ANSWER 3 OF 18 HCAPLUS COPYRIGHT 2006 ACS on STN
 ACCESSION NUMBER: 2004:510005 HCAPLUS
 DOCUMENT NUMBER: 141:38520
 TITLE: Procedure for thermal decarboxylation of
 3,4-ethylenedioxythiophene-2,5-dicarboxylic acid in
 copper carbonate fluidized bed
 INVENTOR(S): Buchholz, Sigurd; Klausener, Alexander; Langer,
 Reinhard; Mleczo, Leslaw; Rauchschalbe, Guenter
 PATENT ASSIGNEE(S): Bayer AG, Germany
 SOURCE: Ger. Offen., 5 pp.
 CODEN: GWXXBX
 DOCUMENT TYPE: Patent
 LANGUAGE: German
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 10258588	A1	20040624	DE 2002-10258588	20021216
WO 2004055023	A1	20040701	WO 2003-EP13679	20031204
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW RW: BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
AU 2003288225	A1	20040709	AU 2003-288225	20031204
EP 1575961	A1	20050921	EP 2003-780117	20031204
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK				
PRIORITY APPLN. INFO.:			DE 2002-10258588	A 20021216
			WO 2003-EP13679	W 20031204
OTHER SOURCE(S): CASREACT 141:38520				

AB The invention relates to the thermal decarboxylation of dicarboxylic acids especially 3,4-ethylenedioxythiophene-2,5-dicarboxylic acid. The thermal decarboxylation of the solid educt is carried out in a fluidized bed in the absence of solvents and in the presence of an inert gas at 100°-600°. The fluidizing agent consists of preheated, catalytically active material such as CuCO₃. The resulting product especially gaseous 3,4-ethylenedioxythiophene is discharged from the reaction zone. Thus, 3,4-ethylenedioxy-thiophene-2,5-dicarboxylic acid and CuCO₃ was fluidized with N₂ in a quartz fluidized bed at 280° for 58 min to give >94% 3,4-ethylenedioxythiophene.

L9 ANSWER 4 OF 18 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2003:259737 HCAPLUS

DOCUMENT NUMBER: 138:271528

TITLE: Preparation of 3,4-dialkoxythiophenes via the alkylation of 3,4-dihydroxythiophene-2,5-dicarboxylic esters

INVENTOR(S): RauchsSchwalbe, Guenter; Klausener, Alexander; Bremen, Josef; Schenkel, Ralf-Ingo; Winkler, Adolf

PATENT ASSIGNEE(S): Bayer AG, Germany; Bayer Chemicals AG

SOURCE: Eur. Pat. Appl., 14 pp.

CODEN: EPXXDW

DOCUMENT TYPE: Patent

LANGUAGE: German

FAMILY ACC. NUM. COUNT: 1

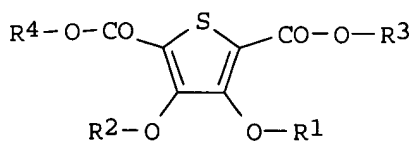
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 1298133	A1	20030402	EP 2002-20594	20020918
EP 1298133	B1	20050119		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, SK				
DE 10148437	A1	20030417	DE 2001-10148437	20011001
AT 287409	E	20050215	AT 2002-20594	20020918
US 2003097007	A1	20030522	US 2002-256836	20020927
US 6750354	B2	20040615		
JP 2003128667	A2	20030508	JP 2002-285694	20020930
			DE 2001-10148437	A 20011001

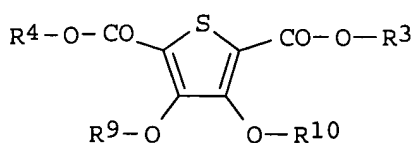
PRIORITY APPLN. INFO.:

OTHER SOURCE(S): CASREACT 138:271528; MARPAT 138:271528

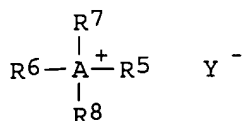
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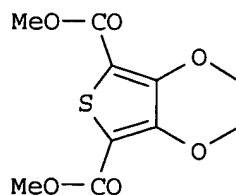
I



II



III



IV

AB A process for the preparation of title compds. I via the alkylation of 3,4-dihydroxythiophenes II in the presence of organic quaternary onium salts III [R1, R2 = H, alkali metal, earth alkali metal; R3, R4 = (un)substituted alkyl; R5, R6, R7, R8 = (un)substituted alkyl, aryl, arylalkyl; R9, R10 = (un)substituted alkyl; A = N, P; Y- = anion] is disclosed. For example, to a mixture of 3,4-dihydroxythiophen-2,5-dicarboxylic acid di-Me ester disodium salt (0.2 mol), potassium carbonate (10.8 g), tetrabutylammonium bromide (3.4 g) in DMF (135 g), heated under nitrogen atm to 130-135°C was added dichloroethane (0.4 mol) over a 15-min period. The reaction was heated for an addnl. 5 h, then concentrated in vacuo and the residue dissolved in 2-propanol (40 g) and aqueous sodium hydroxide (45%, 43 g). The mixture was heated at 80°C for 2 h and after an acid aqueous work-up, afforded dicarboxylic acid IV in 77% yield. The procedure permits the alkylation of compds. I in excellent yields, under mild conditions, at low temps. with short reaction times.

REFERENCE COUNT: 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L9 ANSWER 5 OF 18 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2003:49084 HCAPLUS

DOCUMENT NUMBER: 138:288052

TITLE: Synthesis and characterization of aromatic polyoxadiazoles containing 3,4-alkylenedioxythiophenes

AUTHOR(S): Ojha, Uma P.; Krishnamoorthy, K.; Kumar, Anil

CORPORATE SOURCE: Department of Chemistry, Indian Institute of Technology, Mumbai, 400076, India

SOURCE: Synthetic Metals (2003), 132(3), 279-283

CODEN: SYMEDZ; ISSN: 0379-6779

PUBLISHER: Elsevier Science B.V.

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Wholly aromatic polyoxadiazoles containing 3,4-alkylenedioxythiophenes are synthesized using the precursor polyhydrazide route. The polymers have well-defined structures and exhibit good thermal stability with the onset decomposition temperature in nitrogen at around 330°. The polymers are characterized by FTIR, ¹H NMR, UV-visible and fluorescence spectroscopy. The electrochem. properties of these polymers are studied using cyclic voltammetry. Polyoxadiazoles based on 3,4-alkylenedioxythiophenes exhibit good hole-blocking properties.

REFERENCE COUNT: 20 THERE ARE 20 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L9 ANSWER 6 OF 18 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2003:32694 HCAPLUS

DOCUMENT NUMBER: 139:53425

TITLE: Synthesis and investigation of electrochemical properties of 3,4-butylenedioxythiophene and 3,4-hexylenedioxythiophene monomers

AUTHOR(S): Czardybon, Agata; Zapalska, Zaneta; Maslinska-Solich, Jolanta; Lapkowski, Mieczyslaw

CORPORATE SOURCE: Katedra Fizykochem. i Technol. Polimerow, Politech. Slaska, Gliwice, Pol.

SOURCE: Zeszyty Naukowe Politechniki Slaskiej, Chemia (2001), 146, 83-86

CODEN: ZNSCAM; ISSN: 0372-9494

PUBLISHER: Wydawnictwo Politechniki Slaskiej

DOCUMENT TYPE: Journal

LANGUAGE: Polish

AB We prepared 3,4-butylenedioxythiophene and 3,4-hexylenedioxythiophene. These monomers were polymerized and their stability was examined using cyclic voltammetry. The obtained poly(3,4-butylenedioxythiophene) is stable in the range of potentials (-0.6)-1.1 V. 3,4-Hexylenedioxythiophene polymerized with difficulty in organic solvents.

L9 ANSWER 7 OF 18 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2002:881499 HCAPLUS

DOCUMENT NUMBER: 139:230513

TITLE: Product class 10: thiophenes, thiophene 1,1-dioxides, and thiophene 1-oxides

AUTHOR(S): Schatz, J.

CORPORATE SOURCE: Abt. Organische Chemie I, Universitaet Ulm, Ulm, 89081, Germany

SOURCE: Science of Synthesis (2002), 9, 287-422
CODEN: SSCYJ9

PUBLISHER: Georg Thieme Verlag

DOCUMENT TYPE: Journal; General Review

LANGUAGE: English

AB A review describing methods for preparing thiophenes, thiophene 1,1-dioxides, and thiophene 1-oxides.

REFERENCE COUNT: 1180 THERE ARE 1180 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L9 ANSWER 8 OF 18 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2001:923215 HCAPLUS

DOCUMENT NUMBER: 136:37589

TITLE: Decarboxylation process for the production of 3,4-alkylenedioxythiophenes from 3,4-alkylenedioxythiophene-2,5-dicarboxylic acids using amine as solvents

INVENTOR(S): Jonas, Friedrich

PATENT ASSIGNEE(S): Bayer A.-G., Germany

SOURCE: Ger. Offen., 4 pp.

CODEN: GWXXBX

DOCUMENT TYPE: Patent

LANGUAGE: German

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 10029078	A1	20011220	DE 2000-10029078	20000613
PRIORITY APPLN. INFO.:			DE 2000-10029078	20000613
OTHER SOURCE(S):			CASREACT 136:37589; MARPAT 136:37589	

AB 3,4-Alkylenedioxythiophenes (e.g., 3,4-ethylenedioxythiophene) are prepared in high yield and selectivity, without the need to use copper catalysts, by the decarboxylation of 3,4-alkylenedioxythiophene-2,5-dicarboxylic acids (e.g., 3,4-ethylenedioxythiophene-2,5-dicarboxylic acid) in the presence of amines R₂N(R₁)R₃ [R₁-R₃ = H, (un)substituted (un)branched C₁-30 alkyl, (un)substituted aryl; R₁R₂ = C₃-10 alkylene group] (e.g., triethanolamine) as solvents.

L9 ANSWER 9 OF 18 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2001:923214 HCAPLUS

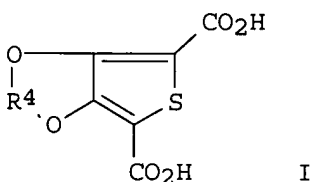
DOCUMENT NUMBER: 136:37588

TITLE: Procedure for the production of 3,4-alkylenedioxythiophene-2,5-dicarboxylic acid

INVENTOR(S): derivatives
 Krugenofen, Friedrich Jonas
 PATENT ASSIGNEE(S): Bayer A.-G., Germany
 SOURCE: Ger. Offen., 6 pp.
 CODEN: GWXXBX
 DOCUMENT TYPE: Patent
 LANGUAGE: German
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 10029075	A1	20011220	DE 2000-10029075	20000613
EP 1167368	A1	20020102	EP 2001-112846	20010531
EP 1167368	B1	20031105		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
AT 253581	E	20031115	AT 2001-112846	20010531
JP 2002193972	A2	20020710	JP 2001-172387	20010607
US 2002002287	A1	20020103	US 2001-877301	20010608
US 6528662	B2	20030304		

PRIORITY APPLN. INFO.: DE 2000-10029075 A 20000613
 OTHER SOURCE(S): CASREACT 136:37588; MARPAT 136:37588
 GI

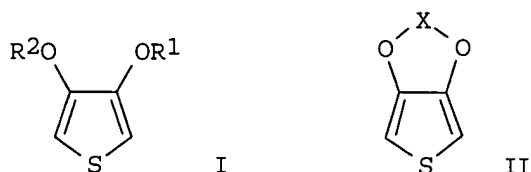


AB 3,4-Alkylenedioxythiophene-2,5-dicarboxylic acid derivs. [I; R4 = (un)branched (un)substituted C1-20 alkyl; e.g., 3,4-ethylenedioxythiophene-2,5-dicarboxylic acid] are prepared by the cyclocondensation of esters R1O2CCH2SCH2CO2R1 (R1 = R4; e.g., R1 = Et) with oxalate diesters R2O2CCO2R2 (R2 = R4; e.g., Et) in the presence of an alkoxide R3OA (R3 = R4; A = Li, Na, K; e.g., potassium methoxide) to give 3,4-dihydroxy-2,5-thiophenedicarboxylate mixed diesters which are then cyclocondensed with R4X2 (X = F, Cl, Br, I; e.g., 1,2-dichloroethane) in the presence of base and the diester groups subjected to saponification followed by acidification.

L9 ANSWER 10 OF 18 HCAPLUS COPYRIGHT 2006 ACS on STN
 ACCESSION NUMBER: 2001:747165 HCAPLUS
 DOCUMENT NUMBER: 135:289187
 TITLE: Preparation of dialkoxythiophenes and alkylenedioxythiophenes
 INVENTOR(S): Rauchsichwalbe, Guenter; Jonas, Friedrich
 PATENT ASSIGNEE(S): Bayer A.-G., Germany
 SOURCE: Eur. Pat. Appl., 10 pp.
 CODEN: EPXXDW
 DOCUMENT TYPE: Patent
 LANGUAGE: German
 FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 1142888	A1	20011010	EP 2001-106444	20010323
EP 1142888	B1	20040908		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
DE 10016723	A1	20011011	DE 2000-10016723	20000404
US 2001034453	A1	20011025	US 2001-813875	20010321
US 6369239	B2	20020409		
AT 275555	E	20040915	AT 2001-106444	20010323
ES 2228680	T3	20050416	ES 2001-1106444	20010323
JP 2001288182	A2	20011016	JP 2001-92829	20010328
PRIORITY APPLN. INFO.:			DE 2000-10016723	A 20000404
OTHER SOURCE(S):	MARPAT 135:289187			
GI				



AB Dialkoxythiophenes (I; R1, R2 = C1-15 alkyl) and alkylenedioxythiophenes (II; X = (un)substituted (CH2)n; n = 1-12], useful as monomers for elec. conductive polymers, are manufactured by decarboxylation of 3,4-dialkoxy- resp. 3,4-dialkylenedioxy-2,5-thiophenedicarboxylic acids in the presence of solvents or diluents which have b.ps. higher than decarboxylated products and are not aromatic amines, and optionally, heavy metal salt catalysts. The products are separated by distillation For example, heating a mixture of 450 g di-Bu

phthalate and 240 g 3,4-ethylenedioxythiophene-2,5-dicarboxylic acid to 150° in vacuo (.apprx.30 mbar) and removing H2O by distillation, heating the residue for 24 h at 240° under N until CO2 evolution ceased and distilling the product at 0.1 mbar gave 118 g 3,4-ethylenedioxythiophene.

REFERENCE COUNT: 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L9 ANSWER 11 OF 18 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2000:157871 HCAPLUS

DOCUMENT NUMBER: 132:200909

TITLE: Electroluminescent devices using thiophenecarboxylate metal complexes

INVENTOR(S): Heuer, Werner; Wehrmann, Rolf; Elschner, Andreas

PATENT ASSIGNEE(S): Bayer A.-G., Germany

SOURCE: Ger. Offen., 50 pp.

CODEN: GWXXBX

DOCUMENT TYPE: Patent

LANGUAGE: German

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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DE 19839947	A1	20000309	DE 1998-19839947	19980902
WO 2000014815	A1	20000316	WO 1999-EP6151	19990823
W: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, GM, KE, LS, MW, SD, SL, SZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
AU 9956236	A1	20000327	AU 1999-56236	19990823
EP 1114474	A1	20010711	EP 1999-942899	19990823
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
JP 2002524830	T2	20020806	JP 2000-569458	19990823
TW 515836	B	20030101	TW 1999-88115076	19990909
US 6503643	B1	20030107	US 2001-786089	20010228
PRIORITY APPLN. INFO.:			DE 1998-19839947	A 19980902
			WO 1999-EP6151	W 19990823

OTHER SOURCE(S): MARPAT 132:200909

AB Electroluminescent devices comprising a substrate, an anode, an electroluminescent structure including ≥ 1 of hole-injecting, hole-transporting, electroluminescent, electron-transporting, and electron-injecting regions, and a cathode, ≥ 1 of the electrodes being transparent in the visible region are described in which the electroluminescent structure includes a thiophenecarboxylate metal complex.

L9 ANSWER 12 OF 18 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1998:127132 HCAPLUS

DOCUMENT NUMBER: 128:167916

TITLE: Conducting Poly(3,4-alkylenedioxythiophene) Derivatives as Fast Electrochromics with High-Contrast Ratios

AUTHOR(S): Kumar, Anil; Welsh, Dean M.; Morvant, Mark C.; Piroux, Fabienne; Abboud, Khalil A.; Reynolds, John R.

CORPORATE SOURCE: Department of Chemistry Center for Macromolecular Science and Engineering, University of Florida, Gainesville, FL, 32611, USA

SOURCE: Chemistry of Materials (1998), 10(3), 896-902

CODEN: CMATEX; ISSN: 0897-4756

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

AB A series of alkyl-substituted and unsubstituted poly(3,4-alkylenedioxythiophene)s were synthesized by electrochem. polymerization using 3,4-alkylenedioxythiophene derivative monomers where either the size of the alkylenedioxy ring or the nature of the pendent group was varied. The monomers include: 3,4-ethylenedioxythiophene (EDOT), 2-methyl-2,3-dihydrothieno[3,4-b][1,4]dioxine (EDOT-Me), 2-tetradecyl-2,3-dihydrothieno[3,4-b][1,4]dioxine (EDOT-C14H29), 2-phenyl-2,3-dihydrothieno[3,4-b][1,4]dioxine (EDOT-Ph), 3,4-dihydro-2H-thieno[3,4-b][1,4]dioxepine (ProDOT), 3-methyl-3,4-dihydro-2H-thieno[3,4-b][1,4]dioxepine (ProDOT-Me), 2,3,4,5-tetrahydrothieno[3,4-b][1,4]dioxocine (BuDOT), and 5,10-dihydrobenzo[f]thieno[3,4-b][1,4]dioxocine (BuDOT-Xyl). Optoelectrochem. expts. revealed that the nature of the substitution on the polymers had little effect on the extent of conjugation of the backbone as evidenced by electronic band gaps for

all polymers of approx. 1.7 eV (730 nm). These electrochromic polymers switch from a relatively transmissive light green in the oxidized form to an opaque dark blue in the reduced form, with the highest electrochromic contrast ratios accessible for PBDOT and PEDOT-C14H29. Multiple switching studies monitoring the electrochromic contrast showed that ca. 300 nm thick polymer films could be fully switched between their reduced and oxidized forms in 0.8-2.2 s with ΔT of 44-63%. In situ conductivity studies carried out on relatively thick polymer films (2.7-9.5 μm) deposited between large gap (200 μm) lateral growth electrodes demonstrated the low-potential turn-on for these materials, and maximum conductivities of 0.2-12.1 S/cm were attained.

REFERENCE COUNT: 27 THERE ARE 27 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L9 ANSWER 13 OF 18 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1997:251082 HCAPLUS

DOCUMENT NUMBER: 126:278009

TITLE: High-Contrast Electrochromic Polymers from Alkyl-Derivatized Poly(3,4-ethylenedioxythiophenes)

AUTHOR(S): Sankaran, Balasubramanian; Reynolds, John R.

CORPORATE SOURCE: Department of Chemistry Center for Macromolecular Science and Engineering, University of Florida, Gainesville, FL, 32611-7200, USA

SOURCE: Macromolecules (1997), 30(9), 2582-2588

CODEN: MAMOBX; ISSN: 0024-9297

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Derivs. of 3,4-ethylenedioxythiophene (EDOT), specifically 5-octyldioxeno[2,3-c]thiophene (EDOT-C8) and 5-tetradecyldioxeno[2,3-c]thiophene (EDOT-C14), and their polymers were prepared. Cyclic voltammetry of PEDOT-C8 and EDOT-C14 in 0.1 M TBAP/CH₃CN show irreversible monomer oxidation peaks (E_p , m) at 0.89 and 0.93 V, resp. Multiple scans yield electroactive and conducting polymer films on electrode surfaces. The polymers, PEDOT-C8 and PEDOT-C14 oxidize with relatively low peak potentials at -0.22 and -0.19 V, resp., indicating that the doped form of the polymer is quite stable. Both PEDOT-C8 and PEDOT-C14 show two reduction processes with peaks at -0.18 and -0.16 V (E_{c1} , p) and -0.55 and -0.36 V (E_{c2} , p) resp. Optoelectrochem. studies reveal an E_g of 1.75 eV for both polymers. The polymers are electrochromic, relatively transmissive and light gray in the oxidized form, while being opaque and deep purple in the reduced form, thus exhibiting high electrochromic contrasts. Long term switching studies carried out in 0.1 M LiClO₄/PC with Li/Li⁺ as a reversible counter electrode process show that PEDOT, PEDOT-C8, and PEDOT-C14 retained 65%, 50%, and 62% of their electroactivity after 6000, 9000, and 16 000 double switches, resp.

REFERENCE COUNT: 51 THERE ARE 51 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L9 ANSWER 14 OF 18 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1996:260464 HCAPLUS

DOCUMENT NUMBER: 125:10524

TITLE: A facile synthesis of 3,4-dialkoxythiophenes

AUTHOR(S): Coffey, M.; McKellar, B. R.; Reinhardt, B. A.;

Nijakowski, T.; Feld, W. A.

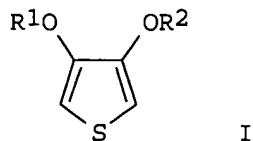
CORPORATE SOURCE: Dep. Chem., Wright State Univ., Dayton, OH, 45435, USA

SOURCE: Synthetic Communications (1996), 26(11), 2205-12

CODEN: SYNCAV; ISSN: 0039-7911

PUBLISHER: Dekker

DOCUMENT TYPE: Journal
 LANGUAGE: English
 OTHER SOURCE(S): CASREACT 125:10524
 GI



AB Dialkylation of di-Et 3,4-dihydroxythiophenedicarboxylate followed by ester hydrolysis and acid decarboxylation provides a general route to 3,4-dialkoxythiophenes I ($R_1 = R_2 = \text{Me, Bu, C}_{10}\text{H}_{21}, \text{CH}_2\text{Ph}$; $R_1R_2 = \text{CH}_2\text{CH}_2, \text{CH}_2\text{CH}_2\text{CH}_2$).

L9 ANSWER 15 OF 18 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1994:271367 HCAPLUS

DOCUMENT NUMBER: 120:271367

TITLE: Electrochromic and highly stable poly(3,4-ethylenedioxythiophene) switches between opaque blue-black and transparent sky blue

AUTHOR(S): Pei, Qibing; Zuccarello, Guido; Ahlskog, Markus; Inganaes, Olle

CORPORATE SOURCE: Dep. Phys., Univ. Linköping, Linköping, S-581 83, Swed.

SOURCE: Polymer (1994), 35(7), 1347-51

CODEN: POLMAG; ISSN: 0032-3861

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The synthesis and properties of poly(3,4-ethylenedioxythiophene) (I) are reported. I shows a low band gap, 0.5 eV lower than that of polythiophene. This leads to very pronounced electrochromic properties since I is almost transparent, with a sky-blue tint, and neutral I is blue-black. The low band gap also leads to the possibility of n-doping by electrochem. methods. The conductivity of doped I is $\leq 200 \text{ S cm}^{-1}$, and the stability is remarkable, much better than observed in the authors' studies of the polythiophene and polypyrrole families.

L9 ANSWER 16 OF 18 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1978:152598 HCAPLUS

DOCUMENT NUMBER: 88:152598

TITLE: 3,4-Methylenedioxythiophene-2,5-dicarboxylic acid amides

INVENTOR(S): Mues, Volker; Jacobi, Haireddin; Etschenberg, Eugen

PATENT ASSIGNEE(S): Fed. Rep. Ger.

SOURCE: Ger. Offen., 13 pp.

CODEN: GWXXBX

DOCUMENT TYPE: Patent

LANGUAGE: German

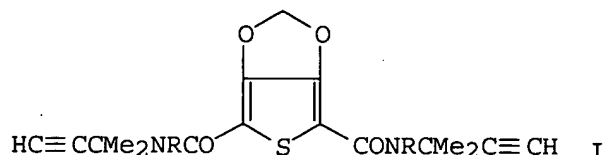
FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 2637816	A1	19780223	DE 1976-2637816	19760821

PRIORITY APPLN. INFO.:
GI.

DE 1976-2637816 A 19760821



AB Amides I (R = H, C1-10 alkyl, C2-10 alkenyl, C2-10 alkynyl, C3-10 cycloalkyl, C6-10 aryl, C7-11 aralkyl, any of which may be substituted) were prepared. Thus 3,4-methylenedioxythiophene-2,5-dicarboxylic acid was converted to its chloride and treated with H₂NCMe₂C.tplbond.CH to give 72% I (R = H), which had analgesic, sedative, antiinflammatory, and central nervous system depressant activity.

L9 ANSWER 17 OF 18 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1975:170765 HCAPLUS

DOCUMENT NUMBER: 82:170765

TITLE: Methylenedioxyhetarenes. 2. Reactions of diethyl 3,4-methylenedioxy-2,5-thiophenedicarboxylate

AUTHOR(S): Dallacker, Franz; Mues, Volker

CORPORATE SOURCE: Inst. Org. Chem., Tech. Hochsch. Aachen, Aachen, Fed. Rep. Ger.

SOURCE: Chemische Berichte (1975), 108(2), 576-81

CODEN: CHBEAM; ISSN: 0009-2940

DOCUMENT TYPE: Journal

LANGUAGE: German

OTHER SOURCE(S): CASREACT 82:170765

GI For diagram(s), see printed CA Issue.

AB The sym. thiophene derivative I (R = R₁ = CO₂Et) (II) was treated with excess alc. KOH, N₂H₄.H₂O, and Br at pH 7.0 to give .apprx.100% I (R = R₁ = CO₂H) (III), 79% I (R = R₁ = CONHNH₂) (IV), and extremely light- and air-sensitive I (R = R₁ = Br) (V), resp. III was esterified to give I (R = R₁ = CO₂Me) or chlorinated and aminated, e.g. with NH₃, to give I (R = R₁ = CONH₂) (VI). IV was condensed with piperonal to yield the piperonylidene derivative I (R = R₁ = CONHN:CHC₆H₃O₂CH₂-3,4) and V converted into I (R = R₁ = iodo). Boiling VI and POCl₃ gave 54% I (R = R₁ = CN), which with H₂S in pyridine-Et₃N gave 100% I (R = R₁ = CSNH₂).

L9 ANSWER 18 OF 18 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1967:402953 HCAPLUS

DOCUMENT NUMBER: 67:2953

TITLE: Synthesis of potential anticancer agents. I. Synthesis of substituted thiophenes

AUTHOR(S): Gogte, V. N.; Shah, L. G.; Tilak, Bal D.; Gadekar, Kumudini N.; Sahasrabudhe, M. B.

CORPORATE SOURCE: Univ. Bombay, Bombay, India

SOURCE: Tetrahedron (1967), 23(5), 2437-41

CODEN: TETRAB; ISSN: 0040-4020

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 67:2953

GI For diagram(s), see printed CA Issue.

AB In view of the anticancer activity of thiophene-2,5-dicarboxylic acid (I),

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a series of derivs. of I were prepared Starting from 2,5-dichloromethylthiophene, thiophene-2,5-dicarboxaldehyde, thiophene-2,5-dimethylenylthiuronium dichloride (II), and 2,5-dimercaptomethylthiophene were prepared 3,4-Dihydroxythiophene, a thiophene isoster of catechol, was prepared by decarboxylation of 2,5-dicarboxy-3,4-dihydroxythiophene. Of the compds. reported, II proved highly active against Yoshida sarcoma in rats.

=> log y

COST IN U.S. DOLLARS

SINCE FILE	TOTAL
ENTRY	SESSION
205.70	540.67

FULL ESTIMATED COST

DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS)

SINCE FILE	TOTAL
ENTRY	SESSION
-39.00	-39.00

CA SUBSCRIBER PRICE

STN INTERNATIONAL LOGOFF AT 09:50:03 ON 13 APR 2006